

University of Pennsylvania Carey Law School

Penn Law: Legal Scholarship Repository

Faculty Scholarship at Penn Law

9-1994

Designing a Hybrid Income-Consumption Tax

Michael S. Knoll

University of Pennsylvania Carey Law School

Follow this and additional works at: https://scholarship.law.upenn.edu/faculty_scholarship



Part of the [Accounting Law Commons](#), [Behavioral Economics Commons](#), [Economic Policy Commons](#), [Law and Economics Commons](#), [Taxation-Federal Commons](#), [Tax Law Commons](#), and the [Work, Economy and Organizations Commons](#)

Repository Citation

Knoll, Michael S., "Designing a Hybrid Income-Consumption Tax" (1994). *Faculty Scholarship at Penn Law*. 1151.

https://scholarship.law.upenn.edu/faculty_scholarship/1151

This Article is brought to you for free and open access by Penn Law: Legal Scholarship Repository. It has been accepted for inclusion in Faculty Scholarship at Penn Law by an authorized administrator of Penn Law: Legal Scholarship Repository. For more information, please contact PennlawIR@law.upenn.edu.

UCLA

UNIVERSITY OF CALIFORNIA LOS ANGELES

LAW REVIEW

FROM THE UCLA TAX POLICY CONFERENCE:

DESIGNING A HYBRID INCOME-
CONSUMPTION TAX

Michael S. Knoll

DESIGNING A HYBRID INCOME-CONSUMPTION TAX

Michael S. Knoll*

INTRODUCTION	1792
I. THE FIVE DESIRABLE CHARACTERISTICS FOR A HYBRID	1794
II. INCOME AND CONSUMPTION POLES	1797
A. The Income Pole	1801
B. The Consumption Pole	1805
C. Comparison of Different Treatments of Savings	1809
III. TREATMENT OF WASTING ASSETS BY TAX POLES	1810
A. Capital Recovery Provisions of the Four Tax Methods	1811
B. Saving Incentives Under the Four Tax Methods	1813
C. Applying the Five Criteria to the Tax Extremes	1816
IV. HYBRID TAXES GENERALLY	1824
A. The Case for a Hybrid Tax	1824
B. Flaws in the Existing Hybrid	1826
V. A BLENDED HYBRID	1835
A. The Operation of the Hybrid	1835
B. The Nature of the Blended Hybrid	1837
C. The Blended Hybrid Satisfies Three of the Five Desirable Criteria for a Hybrid	1839
1. The Blended Hybrid is Neutral	1839
2. Problems in Constructing a Hybrid Using the Yield Exemption Method	1839
3. The Blended Hybrid is Transparent	1841
4. Progressivity	1841
D. Summary: The Blended Hybrid Satisfies Three of the Criteria for a Desirable Hybrid	1841
VI. A SIMPLE HYBRID	1842
A. Operation of the Simple Hybrid	1843
B. The Nature of the Simple Hybrid	1845

* Associate Professor, University of Southern California. I thank Ellen Aprill, Michael Asimow, Tom Griffith, Daniel Halperin, Ed McCaffery, and Jeff Strnad for their comments and Eric Damon, Kenny Gersh, Robert Kim, and Joann Peters for their assistance with the research. I benefitted greatly from presenting an earlier version of this Article at the UCLA Tax Policy Conference honoring Bill Klein sponsored by the UCLA School of Law and the friends of Bill Klein. The financial support of the Zumberge Research and Innovation Fund is gratefully acknowledged. Copyright 1994 by Michael S. Knoll. All rights reserved.

C. The Simple Hybrid Satisfies All Five Criteria for a Desirable Hybrid	1846
1. The Simple Hybrid is Neutral	1846
2. Advantages from Using the Cash Flow Method in a Hybrid	1846
3. The Simple Hybrid is Transparent	1849
4. Progressivity	1849
D. Summary: The Simple Hybrid Satisfies the Five Criteria for a Desirable Hybrid	1850
VII. COCA: THE REAL THING?	1850
A. The Operation of COCA	1851
B. The Nature of COCA	1854
C. COCA Satisfies the Five Criteria for a Desirable Hybrid	1856
1. COCA is Neutral	1856
2. COCA Yields the Advantages from Using the Cash Flow Method in the Hybrid	1857
3. COCA is Transparent	1858
4. Progressivity	1858
D. Summary: COCA Satisfies the Five Criteria for a Desirable Hybrid	1859
CONCLUSION	1859

INTRODUCTION

The major comprehensive tax system in the United States is a hybrid that combines elements of an income tax and a consumption tax.¹ The essential difference between an income and a consumption tax is in the treatment of savings.² Specifically, an income tax includes the yield on savings in the tax base whereas a consumption tax excludes it.³ Thus, the U.S. tax system is a hybrid because the yield on savings is neither taxed at as high a rate as earned income nor is it exempt from taxes.⁴ Although in practice every tax system is a hybrid,⁵ for decades commentators have debated the relative merits of the income and consumption tax. Recently commentators have come to realize that a hybrid tax is not only a matter of

1. Henry J. Aaron et al., *Introduction to UNEASY COMPROMISE: PROBLEMS OF A HYBRID INCOME-CONSUMPTION TAX* 1, 1 (Henry J. Aaron et al. eds., 1988) [hereinafter *UNEASY COMPROMISE*]; William D. Andrews, *A Consumption-Type or Cash Flow Personal Income Tax*, 87 HARV. L. REV. 1113, 1120 (1974).

2. Aaron et al., *supra* note 1, at 1.

3. *Id.*

4. David F. Bradford, *The Economics of Tax Policy Toward Savings*, in *THE GOVERNMENT AND CAPITAL FORMATION* 11, 15-19 (George M. von Furstenberg ed., 1980); Don Fullerton, *The Consumption Tax: An Idea Whose Time Has Come?*, 27 TAX NOTES 435, 438 (1985).

5. Aaron et al., *supra* note 1, at 1.

political necessity but might also be an efficient and normatively desirable tax system.⁶

However desirable some form of hybrid tax might be, the present hybrid has justifiably been the target of much criticism.⁷ The criticism arises from inconsistencies in the existing hybrid that promote unfairness and inefficient decisionmaking.⁸ Thus, because there is widespread agreement that the existing hybrid is grossly inefficient and unfair and because there is no consensus, scholarly or political, in favor of either pole, it follows that a new hybrid is needed. This Article seeks to direct scholarly attention away from both marginal improvements in the existing hybrid and the debate over whether there should be an income tax or a consumption tax towards large-scale redesign of the hybrid.

This Article describes and evaluates three hybrid taxes as replacements for the existing comprehensive hybrid tax system. All three hybrids have the income tax at one pole and the consumption tax at the other pole and by simply varying one parameter policymakers can choose any point in the continuum between the two extremes. Although the first hybrid, which has received the most attention, is administratively impractical because it would require difficult appraisals by administrative authorities, the last two hybrids would be relatively easy to implement. In this Article, I argue that adopting either of the last two hybrids would simplify the tax system and eliminate the inconsistencies that are the target of so much criticism. The result would be a more efficient and fairer tax system that is both easier to implement and less subject to abuse.

6. William D. Andrews & David F. Bradford, *Savings Incentives in a Hybrid Income Tax*, in *UNEASY COMPROMISE*, *supra* note 1, at 269, 269-97; Bradford, *supra* note 4, at 20-28; Edward J. McCaffery, *Tax Policy Under a Hybrid Income-Consumption Tax*, 70 TEX. L. REV. 1145 (1992); Deborah M. Weiss, *Can Capital Tax Policy Be Fair? Stimulating Savings Through Differentiated Tax Rates*, 78 CORNELL L. REV. 206 (1993). Earlier suggestions that some form of hybrid might be desirable can be found in Professor Andrew's writings. See, e.g., Andrews, *supra* note 1, at 1185-88; William D. Andrews, *Fairness and the Personal Income Tax: A Reply to Professor Warren*, 88 HARV. L. REV. 947, 958 (1975); William D. Andrews, *What's Fair About Death Taxes?*, 26 NAT'L TAX J. 465, 465-66 (1973).

7. See *infra* Part IV.B.

8. DAVID F. BRADFORD, *UNTANGLING THE INCOME TAX* 188-90 (1986); Henry J. Aaron & Harvey Galper, *A Tax on Consumption, Gifts and Bequests and Other Strategies for Reform*, in *OPTIONS FOR TAX REFORM* 106, 106 (Joseph A. Pechman ed., 1984); Aaron et al., *supra* note 1, at 1; Don Fullerton et al., *Replacing the U.S. Income Tax with a Progressive Consumption Tax*, 20 J. PUB. ECON. 3, 22 (1983).

The rest of this Article is organized as follows. Part I outlines the qualities that a hybrid tax should have. Part II describes the income and consumption tax poles through a simple one-period investment example, and Part III describes the tax poles' treatment of long-lived assets. Part IV provides the normative arguments in favor of a hybrid tax of some form and describes the flaws in the current hybrid. Parts V through VII each describe and evaluate a different alternative hybrid.

I. THE FIVE DESIRABLE CHARACTERISTICS FOR A HYBRID

Commentators typically say that a tax system should be fair, efficient, and administrable.⁹ Because these qualities are all highly abstract, that list is more useful in providing a structure for thinking about the characteristics a tax system should possess than it is in evaluating concrete proposals for reform. Not surprisingly, there is substantial debate and disagreement about both the application of each quality¹⁰ and the trade-offs to make between them.¹¹ The hard work is in giving content to these categories and making trade-offs across them.

The difficult policy trade-offs that must be made in choosing the single best tax system suggest that flexibility is a virtue in designing a hybrid that encompasses a family of tax systems. Designing a hybrid is an easier task than establishing the single best tax system because many of the most important and difficult trade-offs can be left to those who will eventually implement the new hybrid.¹² Thus, for example, the amount of revenue raised by the tax and the progressivity of the rate schedule, both important and highly-charged tax policy issues, can be ignored for now because the hybrids accommodate the full range of these possibilities. Most important, the debate over the proper treatment of savings can also be avoided, because each hybrid encompasses the income pole, the consumption pole, and everything between. Thus, many difficult issues in designing an ideal tax

9. John B. Shoven & Paul Taubman, *Saving, Capital Income and Taxation*, in *THE ECONOMICS OF TAXATION* 203, 203-04 (Henry J. Aaron & Michael J. Boskin eds., 1980).

10. See, e.g., *infra* notes 104-105 and accompanying text (discussing the debates over whether the income tax or the consumption tax is fairer or more efficient).

11. Compare Boris I. Bittker, *Equity, Efficiency, and Income Tax Theory: Do Misallocations Drive Out Inequities?*, 16 *SAN DIEGO L. REV.* 735 (1979) with Martin J. McMahon, Jr., *Individual Tax Reform for Fairness and Simplicity, Let Economic Growth Fend for Itself*, 50 *WASH. & LEE L. REV.* 459 (1993).

12. A hybrid should be able to accommodate a fair, efficient, and administrable tax system, whatever that is.

system can be postponed in designing a hybrid.¹³ From the tax literature, I have compiled a list of what I consider to be five highly desirable qualities for a hybrid. Although highly desirable, they are not likely to be controversial.¹⁴ They are as follows:

Neutrality—A neutral tax system is one in which taxes do not induce any investments with lower before-tax rates of return, while failing to induce other independent investments with higher before-tax yields.¹⁵ Neutrality increases wealth and promotes both fairness and efficiency.¹⁶ When investments are taxed inconsistently, neutrality is lost. Because after-tax risk-adjusted returns are equated at the margin, more heavily taxed investments must have a higher total return than less heavily taxed investments. Thus, some lightly taxed investments will be made with lower total rates of return whereas some heavily taxed investments with higher total returns are foregone. Because the lack of neutrality in the present system is the target of the chorus of criticisms directed towards the status quo, neutrality is a very important goal for any hybrid.¹⁷

Tractability—The tax system should be simple to implement and enforce. It should operate with minimal need for appraisals or allocations by taxpayers and government authorities. This will permit fair and nonarbitrary implementation, as well as reduce administration and compliance costs.

Fiscal Policy—The tax system should permit policymakers to distinguish new investment from old investment so that they can encourage new

13. Some issues are extraneous. For example, the debate over the appropriate tax treatment of medical expenses and business entertainment can be ignored for now because it does not relate to the line between consumption and saving.

14. Other qualities that might be considered highly desirable were controversial, such as whether taxes should be painless or painful to collect, which would make it easy or difficult to increase taxes. See generally Edward J. McCaffery, *Cognitive Theory and Tax*, 41 *UCLA L. REV.* 1861 (1994). Others that were not controversial were not useful in evaluating or distinguishing among the hybrids because they were unrelated to the tax treatment of savings. For example, a tax system should be publicized in order to give taxpayers notice of the rules so that they can assess their liabilities and order their affairs in light of those provisions.

15. Pamela B. Gann, *Neutral Taxation of Capital Income: An Achievable Goal?*, 48 *LAW & CONTEMP. PROBS.* 77, 108 (1985).

16. For a discussion of the unfairness and inefficiency that is a result of the current hybrid's lack of neutrality, see *infra* notes 120-157 and accompanying text.

17. See Gann, *supra* note 15, at 81.

investment without reducing taxes on preexisting investment.¹⁸ The ability to change the tax treatment for new investment without changing the tax treatment of preexisting investment ensures that tax reductions will provide the greatest amount of stimulus for each dollar of reduced tax revenue.¹⁹ In general, a tax system that can distinguish between new and old investment facilitates the use of fiscal policy, one of government's major economic tools for stabilization and growth.²⁰

Transparency—A tax system is transparent when the effect of different rules is easy to see and to trace. Both policymakers and taxpayers should understand how the tax system operates.²¹ The latter to encourage respect and voluntary compliance; the former to facilitate the elimination, or at least the reduction, of inequities and inefficiencies. Transparency is lost when conflicting rules are layered upon one another.

Progressivity—The tax system should permit the implementation of both flat and progressive tax regimes.²² The implementation of progressive tax regimes should not compromise the other criteria. The principal threat from progressivity is to neutrality, which is lost when individuals face different tax rates at different times.

The above five criteria are used to evaluate various tax systems. Over the course of the next two parts, the two extremes, the income and con-

18. See, e.g., GEORGE HATSPOULOS ET AL., OVERCONSUMPTION: THE CHALLENGE TO U.S. ECONOMIC POLICY (American Business Conference Working Paper, 1989); Mervyn A. King, *The Cash Flow Corporate Income Tax*, in THE EFFECTS OF TAXATION ON CAPITAL ACCUMULATION 377, 390-92 (Martin Feldstein ed., 1987). But see Daniel Feenberg, *Comment*, in THE EFFECTS OF TAXATION ON CAPITAL ACCUMULATION, *supra*, at 398, 399-400. The difficulty that businesses incur in planning investment strategies in the face of changing tax laws is the cause of much frustration. Rick Wartzman, *Whether or Not They Benefit, Companies Decry Instability in the Tax Law as a Barrier to Planning*, WALL ST. J., Aug. 10, 1993, at A16.

19. The fiscal policy criterion also allows the reverse policy to be adopted. By distinguishing between old and new investment, policymakers can increase taxes on new investment without increasing taxes on existing investment. That will ensure that tax increases will provide the greatest amount of breaking for each dollar of increased tax revenue. Such tax increases are intended to fight inflation.

20. See RICHARD A. MUSGRAVE & PEGGY B. MUSGRAVE, PUBLIC FINANCE IN THEORY AND PRACTICE 216 (5th ed. 1989).

21. Of course, policymakers need a better understanding than taxpayers.

22. Joseph Bankman and Thomas Griffith argue that under reasonable economic assumptions most normative theories would require a progressive schedule of tax rates. Joseph Bankman & Thomas Griffith, *Social Welfare and the Rate Structure: A New Look at Progressive Taxation*, 75 CAL. L. REV. 1905 (1987). This sentiment is widely shared as evidenced by the progressivity of the tax law, both currently and throughout its history.

sumption taxes, are described and assessed using the five criteria; Part IV shows that the current hybrid does not meet all five criteria; and in each of the following three parts, a comprehensive hybrid tax is described and assessed using the criteria. The principal result reported in this Article is that because the last two hybrids meet all five criteria whereas the first hybrid fails to meet the tractability and fiscal policy criteria, the first hybrid is a poor model for reform of the tax system, whereas the last two hybrids provide direction for possible reform.

II. INCOME AND CONSUMPTION POLES

Part II describes the income and consumption tax poles and how they differ. This part begins by providing a simple investment example and by introducing two investment rules. The two poles are then illustrated using that example and those rules.

An easy way to understand the difference between the income and consumption poles and among the different kinds of income and consumption taxes is through a simple, but profitable, one-period investment project. Assume that the risk-free rate of return in the economy is 20%, compounded annually, and consider an investor who has the opportunity to invest \$100 in a project today (time 0) that will in one year (time 1) pay \$150 with certainty. It is obvious that if the investor has \$100 to invest, she should undertake the project, instead of putting the \$100 in the bank, because she will have \$30 more (\$150 instead of \$120) at the end of the year.

As illustrated in Figure 1, the return from the investment (the right bar) can be decomposed into three elements. Of the \$150 the investor receives at the end of the year: (1) \$100 is the return of her original investment;²³ (2) \$20 is the ordinary return, or what she could earn by depositing the money in the bank; and (3) \$30 represents the excess return, what she earns by investing in the project over and above what she could earn by depositing the money in the bank. Because the excess return is positive, the project is an attractive alternative to depositing \$100 in the bank.

23. The original investment is (a) in the left bar of Figure 1.

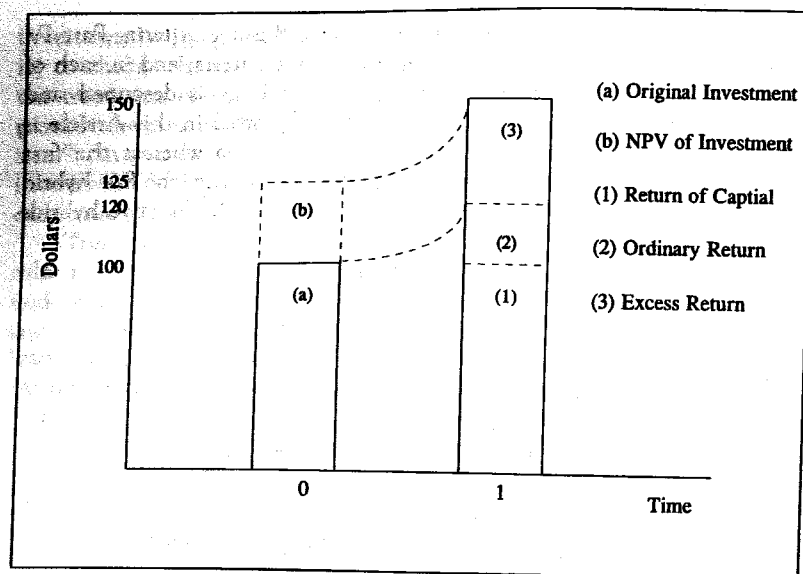


Figure 1—The Return on a Simple Investment

Granted that the investment is attractive if the investor has \$100 to invest, should she forego the opportunity if she does not have the money? Not if she could borrow \$100 by paying 20% interest. Even if she wants to spend as much as she can today, the investment would still be attractive because she could spend \$25 more today than if she completely forgoes the investment. She could borrow \$125, invest \$100 in the project, and spend \$25. At the end of the year, she will owe \$150,²⁴ which she can repay with the project's payoff.

The extra \$25 that the investor can spend now by undertaking the project is the project's net present value (NPV) (in Figure 1, b) and represents the increase in her current wealth from undertaking the project. Thus, to maximize her wealth, the decision rule she should adopt is to accept all positive NPV projects and reject all negative NPV projects; among mutually exclusive projects, she should choose the one with the

24. The \$150 owed consists of \$125 principal and \$25 (20% of \$125) interest.

highest NPV.²⁵ That investment decision rule, which is called the NPV rule,²⁶ is not the only guide for investment decisions.

When the candidate projects are very simple with an initial cash outflow and a payoff at a single date, the investor can look at the excess return (in Figure 1, 3). Because the NPV is the excess return discounted to the present, it follows that if the excess return is positive, the NPV is positive, and vice versa. Therefore, in order to select projects that increase her wealth and avoid projects that reduce it, the investor should accept projects that have a positive excess return and reject those that have a negative excess return. Unfortunately, for investments with more than two cash flows terms, she cannot simply look to the excess return because an investor is likely to have an excess return in some periods but not in others. Instead, she should use the multi-period version of the excess return rule known as the internal rate of return (IRR) rule.

The IRR is the discount rate for which the project has an NPV of 0. The project's IRR is then compared to the discount rate for projects of the same risk.²⁷ If the IRR exceeds the discount rate, the project is accepted; if the IRR is less than the discount rate, the project is rejected.²⁸ The discount rate is sometimes called the hurdle rate because that rate partitions candidate investment projects between acceptable and unacceptable investments.

There are some inconsistencies between the IRR and NPV rules, and where the two conflict the correct answer is always given by the NPV rule.²⁹ However, for an independent investment project where the cash

25. An investor who can borrow and lend at the market interest rate should invest in projects that maximize her wealth. For such an investor wealth maximization is the appropriate investment goal, regardless of when she wants to consume, because she can shift consumption through time at no cost by borrowing or lending. STEPHEN A. ROSS ET AL., *CORPORATE FINANCE* 55-59 (3d ed. 1993).

26. *Id.* at 77-105.

27. This is the same discount rate as is used in the NPV rule.

28. ROSS ET AL., *supra* note 25, at 164.

29. When compared to the NPV rule, the IRR rule has four distinct shortcomings, two general and two that apply only to mutually exclusive projects. First, the IRR rule assumes that the subject is always investing. If the subject is borrowing, the IRR rule should be the exact opposite: Accept the project when the IRR is less than the discount rate and reject the project when the IRR is greater than the discount rate.

Second, the IRR rule cannot be used when the project produces alternating negative and positive cash flows because there are multiple IRRs. For example, a project with an initial negative cash flow of \$200, then a positive cash flow of \$460, and finally a negative cash flow of \$264 has two IRRs: 10% and 20%. For this project, the NPV is positive only when the discount rate is between the two IRRs.

The next two problems, those of scale and timing, apply only to mutually exclusive projects. The IRR rule can lead an investor to choose a smaller project with a higher IRR over a larger

outflow is followed only by cash inflows, such as above, the two rules produce identical results.³⁰ Applying the IRR rule to the example, the project requires an investment of \$100 and produces \$150 at maturity. Thus, the investment has an IRR of 50%.³¹ Because the IRR (50%) exceeds the discount rate (20%), the project should be accepted.

The preceding simple example and the IRR and NPV of an investment are used immediately below to illustrate the different tax poles. The two investment rules are also used later in this Article to describe the hybrids. Specifically, the IRR is used to illustrate how taxes affect hurdle rates for investments, the minimum before-tax return an investment must produce to be accepted. The hurdle rate, adjusted for risk, is a simple means of defining a tax system, and so it is used to describe each hybrid in terms of its poles. The NPV is used to illustrate how tax systems can differ in their treatment of the ordinary return and the NPV of an investment. Understanding how alternative tax systems treat the ordinary return and the NPV is important because the ordinary return is easy to identify and isolate from the rest of the taxpayer's earnings, whereas the NPV is not. This makes it feasible to implement a hybrid that reduces the effective tax rate on the ordinary return, but impractical to implement a hybrid that reduces the tax rate on the NPV. It is this failure that undercuts the most frequently proposed hybrid replacement for the current hybrid.

project with a higher NPV. For example, consider two projects, one which costs \$10 and immediately returns \$20 and another which costs \$100 and immediately returns \$150. The IRR rule says choose the first project, because its IRR of 100% exceeds the second project's IRR of 50%. However, the second project has a higher NPV: \$50 as opposed to \$10.

The last major complication with the IRR rule, the timing problem, is similar to the scale problem. The timing problem arises when two investments have IRRs above the discount rate but the investment with the lower IRR will continue paying the above market rate for a larger time. Consider the following two projects:

	T_0	T_1	T_2	IRR
PROJECT A	-\$1000	\$1200	\$0	20%
PROJECT B	-\$1000	\$180	\$1180	18%

Project A has a higher IRR, 20%; however, depending on the discount rate, project B might be a better investment. For example, when the discount rate is 10%, project A has an NPV of \$90.91, whereas project B has an NPV of \$236.36. Unless the discount rate is very high, the NPV of project B will exceed that of project A even though project A has a higher IRR. *Id.* at 165-75.

30. The two rules produce identical results when there is a series of cash outflows followed by a series of inflows and where the decision is whether to accept or reject independent projects. *Id.* at 170.

31. The IRR of 50% is derived by solving for IRR in the following equation:

$$0 \text{ (NPV)} = -\$100 + \$150/(1 + \text{IRR}).$$

A. The Income Pole

A common way of thinking about the income pole is as a double tax on savings. As first observed by John Stuart Mill, income that is earned and consumed is subject to a single level of tax, whereas income that is earned and invested is subject to two levels of tax.³² For example, a taxpayer in the 30% tax bracket will have to earn \$142.86, paying tax of \$42.86, to have \$100 after-taxes.³³ If the taxpayer then spends the remaining \$100 on consumption, there will be no further tax on the transaction. Another taxpayer in the same 30% tax bracket who also earns \$142.86 can invest \$100 in the project after paying taxes. However, this taxpayer will pay an additional \$15 tax on the \$50 yield on the investment.³⁴ The use of after-tax dollars to make the investment and the taxation of the return on the investment constitute the double tax on savings. The double tax is a misnomer in the sense that the \$100 in savings is not taxed twice; only the \$50 yield is subject to a second level of tax.

The double tax on savings is a consequence of the Haig-Simons definition of income. As expressed by Henry Simons, this principle defines the tax base as "the algebraic sum of (1) the market value of rights exercised in consumption and (2) the change in the value of the store of property rights between the beginning and the end of the period in question."³⁵ This definition of income as the sum of consumption plus the net increase in savings is simply an accounting identity. All income is divided into consumption and savings; there are no other uses for income. The double tax on savings arises because the second part of the tax base would include both savings and the earnings on previous savings.

The income extreme also requires that income be measured as it accretes. That is, at the end of each period, taxpayers would be taxed on the change in value of their investment portfolio.³⁶ Thus, in the example

32. JOHN S. MILL, *PRINCIPLES OF POLITICAL ECONOMY* 814 (Sir William Ashley ed., Augustus M. Kelley Publishers 1973) (1848).

33. The required earnings are calculated by solving the following equation for Earnings: $\text{Earnings} (1 - .3) = \100 . Thus, $\$142.86 (\text{Earnings}) = \$100 / (1 - .3)$.

34. The example assumes that the gain is taxed as ordinary income, not at the preferential rate for capital gains. This would occur, for example, if the investment were in inventory later sold at a profit. The assumption that income is taxed at ordinary income rates is used throughout, because the hybrids proposed in this Article would eliminate any need for capital gains relief to reduce the tax law's discouragement of investment.

35. HENRY C. SIMONS, *PERSONAL INCOME TAXATION* 50 (1938).

36. The Haig-Simons definition of income is incomplete in that it does not define an assessment period, and accretion taxes with different assessment periods can have different economic consequences. Jeff Strnad, *Periodicity and Accretion Taxation: Norms and Implementation*, 99 YALE

described above, the taxpayer would have \$25 taxable income when the investment is made (the NPV of the project) and another \$25 taxable income one year later when the investment appreciates from \$125 to \$150.³⁷ Assuming a flat 30% tax, she will pay \$7.50 tax at time 0 and another \$7.50 tax at time 1. Discounting at 20% the tax paid at time 1, the present value of the total tax burden is \$13.75.³⁸ Thus, the after-tax NPV of the investment, the difference between the before-tax NPV of \$25 and the present value of the tax burden, \$13.75, is \$11.25 with an accretion tax.

For investments that are traded on organized exchanges, such as stocks and options, the accretion income extreme would be relatively simple to implement because their market prices can be ascertained from the financial pages of the daily paper.³⁹ However, for rarely traded and unique assets, implementation would be more difficult. It is possible, albeit expensive, to appraise a house; it is much more difficult and expensive to appraise an art collection or an interest in a professional practice.⁴⁰ Although the Supreme Court in *Eisner v. Macomber* held that income could not be taxed without a realization event,⁴¹ commentators generally agree that there are no constitutional restrictions on when income is recognized for tax purposes.⁴² Congress, if it so chose, could tax unrealized income, as it does in a few isolated instances.⁴³ That Congress does not choose to do so is simply a matter of administrative convenience. Because of the numerous

L.J. 1817, 1861 (1990).

37. The appreciation occurs because the receipt of \$150 is no longer a year away but will occur immediately.

38. The present value of the tax burden is calculated as follows: \$13.75 (PV tax burden) = \$7.50 + \$7.50/1.2.

39. The income on any investment is the difference between the closing price on December 31 of the current year and its closing price from the last day of the previous year. Summing across all investments and netting losses against gains yields the change in value of the portfolio, which is the amount subject to tax. See David Slawson, *Taxing As Ordinary Income the Appreciation of Publicly Held Stock*, 76 YALE L.J. 623 (1967).

40. In addition, accuracy would be very important because tax liability would depend on the appraised value. However, there are likely to be large variations in appraised values.

41. 252 U.S. 189 (1920).

42. See MARVIN A. CHIRELSTEIN, *FEDERAL INCOME TAXATION: A GUIDE TO THE LEADING CASES AND CONCEPTS* ¶ 5.01, at 71 (7th ed. 1994).

43. Section 1256 provides for accrual taxation treatment for regulated futures contracts, foreign currency contracts, non-equity options, and dealer equity options. These contracts are treated as sold for their fair market value on the last business day of the year, with the resulting gain or loss included in taxable income. I.R.C. § 1256 (1988). This tax treatment of certain investment contracts is commonly referred to as mark-to-market. Section 1256 further provides that 40% of the gain or loss shall be treated as short-term capital gain or loss and 60% as long-term capital gain or loss. *Id.*

intractable problems involved in appraising all kinds of tangible and intangible assets with unique characteristics that are rarely traded, the income tax contains a broad realization requirement.⁴⁴ That realization requirement plays a major role in this Article; the hybrids described in this Article are all combinations of such an income tax and various forms of the consumption tax.⁴⁵

As applied to the above example, the income tax with a realization requirement would not subject any increase in value to tax until the investment pays off at time 1. At that time, the investor pays tax on \$50, the gain on the investment. Assuming a 30% tax rate, the investor pays \$15 tax. Discounted at 20% to time 0, when the investment was made, the tax burden is \$12.50.⁴⁶ Thus, the after-tax NPV is \$12.50 with a realization income tax, which is \$1.25 more than with an accretion tax.⁴⁷

The investment decision can also be made using the IRR rule. Since the investor's after-tax discount rate is 20%, she should compare the after-tax IRR to this amount. Starting with the realization income tax, the investment still costs \$100 and the return is still \$150 before tax but only \$135 after-tax. Thus, the investment has an after-tax IRR of 35%.⁴⁸ With the accretion tax, the after-tax IRR is slightly less, only 33%, because of the accelerated tax liability.⁴⁹ In either case, the after-tax IRR exceeds the after-tax discount rate, 20%, and so the investment should be accepted.

The after-tax IRR only measures the private (or after-tax) rate of return. The total return, commonly called the social (or before-tax) return, is still 50%. However, a portion of that return is captured by the government through taxes, leaving less for the investor. The hurdle rate for

44. CHIRELSTEIN, *supra* note 42, ¶ 5.01, at 72. Another reason sometimes offered for including a realization requirement in the tax law is that many taxpayers would not have the cash to pay the tax on the appreciated property and so would be forced to liquidate their holdings, perhaps at unfavorable terms, to satisfy the tax obligation. *Id.* The broad realization requirement in the U.S. income tax appears at I.R.C. § 1001 (1988).

45. Thus, the hybrids cannot eliminate inconsistencies that arise because of the realization requirement.

46. The present value of the tax burden is calculated as follows: \$12.50 (PV tax burden) = \$15/1.2.

47. The tax burden is lower with the realization requirement because \$7.50 of the \$15 that the investor pays in taxes is deferred. This is an application of the general principle that postponed taxes have a smaller present value than current taxes. See CHIRELSTEIN, *supra* note 42, ¶ 1.01, at 2-3.

48. The IRR with the realization tax, 35%, is calculated by solving for IRR in the following equation: $0 \text{ (NPV)} = -\$100 + (\$150 - \$15)/(1 + \text{IRR})$.

49. The IRR with the accretion tax is calculated as follows: $0 \text{ (NPV)} = -(\$100 + \$7.50) + (\$150 - \$7.50)/(1 + \text{IRR})$. Rearranging terms: $(\$142.50 - \$107.50) \div \$107.50 = .3256$, which rounds to 33%.

investments is the minimum social return an investment must have to pass the after-tax IRR test. The application of the before-tax IRR rule to the project is described below.

Assuming that the after-tax discount rate is 20%, the hurdle rate is calculated as follows. Starting with the accretion tax, the initial \$100 investment produces no immediate tax consequences if the investment has 0 NPV. One year later, the investment must produce \$120 after-taxes to match the hurdle rate. That will not occur if the investment produces \$120 before taxes, because there will be a tax of \$6 (30% of \$20), leaving only \$114. Instead, the investment must return \$128.57 before taxes to return \$120 after-taxes.⁵⁰ Accordingly, the hurdle rate is 28.57%. The hurdle rate in the example is the same for the realization income tax.⁵¹

50. This is calculated as follows: $\$100 (\text{return of principal}) + [\$20 (\text{after-tax profit}) \div (1 - .3)] = \128.57 .

51. The results are not the same for the different methods of implementing the income tax if the investment horizon is two or more periods away and there is no provision for taxing anticipated increases in value similar to the depreciation deduction, which provides a deduction for anticipated decreases. The discount rate is still 28.57% for the accretion income tax. The \$100 investment grows to \$128.57 after one period, which produces a \$8.57 tax liability. At maturity the investment is worth \$165.30. On the \$36.73 increase in value between years 1 and 2, there is an additional \$11.02 tax, leaving \$154.28. The cash flow stream $(-100, -8.57, 154.28)$ has an IRR of 20%: $0 = -100 - 8.57 \div 1.2 + 154.28 \div (1.2)^2$. With a realization requirement, there is no tax liability generated by the accretion in value between years 1 and 2. Tax is only paid in year 3 when the investment matures. At the end of two years, \$100 must yield \$144 after-tax. Given a 30% tax rate, the investment must grow to \$162.86 before taxes at maturity. This is less than the \$165.30 that the investment must be worth for the accretion income tax to be acceptable. Accordingly, the hurdle rate with the realization income tax is only 27.62%. Moreover, the hurdle rate with the realization income tax falls as the investment horizon is extended. For example, if the investment horizon is 10 years, the hurdle rate falls to 23.74%. This decline in the hurdle rate as the investment horizon is extended implies that some investments will be selected over other investments with higher before-tax IRRs solely because of tax considerations.

This concern is addressed for investments in bonds by the original issue discount rules. I.R.C. §§ 1271-1275 (1988). These rules effectively tax debt instruments on the accretion method. Jeff Strnad, *Taxing New Financial Products: A Conceptual Framework*, 46 STAN. L. REV. 569, 587 n.48 (1994). However, for other investments, accretion is not taxed, although in theory it should be so taxed. David J. Shakow, *Taxation Without Realization: A Proposal for Accrual Taxation*, 134 U. PA. L. REV. 1111, 1114-18 (1986). In practice, this could be accomplished by estimating in advance the periodic gain and subjecting this amount to tax. When the investment is sold, any difference is subject to tax. This method is conceptually similar to the method employed in the OID rules. Noël B. Cunningham & Deborah H. Schenk, *Taxation Without Realization: A "Revolutionary" Approach to Ownership*, 47 TAX L. REV. 725 (1992). An alternative to estimating in advance the gain that will accrue is to wait for realization to occur and then to impose an interest charge on the assumption that the gain has accrued at a constant rate over the period the investment was held. E.g., Alan J. Auerbach, *Retrospective Capital Gains Taxation*, 81 AM. ECON. REV. 167 (1991); Roger Brinner, *Inflation, Deferral and the Neutral Taxation of Capital Gains*, 26 NAT'L TAX J. 565 (1973); P.A. Diamond, *Inflation and the Comprehensive Tax Base*, 4 J. PUB. ECON. 227 (1975); John Helliwell, *The Taxation of Capital Gains*, 2 CAN. J. ECON. 314

Thus, with either version of the income tax, the project will also pass the before-tax IRR test, because the before-tax IRR (50%) exceeds the hurdle rate (28.57%). That the project passed both versions of the test is not a coincidence. When used correctly, the before- and after-tax IRR rules produce identical results for a given project.

Tax policy experts are concerned with how different tax regimes affect the hurdle rate for investments. A tax that raises the hurdle rate above the private discount rate will prevent investments with total rates of return between the two rates from being made. Thus, the income tax creates a wedge between the hurdle rate and the private discount rate, which discourages investment by raising the before-tax rate of return required to yield a given after-tax return to the investor. Moreover, the effect increases as the tax rate increases. With a 30% tax rate, the wedge is 8.57%. With a 50% tax rate, the hurdle rate would be 40%, and the wedge would be 20%.⁵² Thus, the higher the tax rate, the higher the hurdle rate, and the smaller the amount of private investment.

B. The Consumption Pole

Commentators have recognized that there is more than one way to implement a consumption tax. The Haig-Simons definition of income as the sum of consumption and net savings implies that a consumption tax differs from an income tax in that a consumption tax would exempt net savings from the tax base.⁵³ This principle led William Andrews to conclude that a consumption tax could either be implemented directly, or equivalently, it could be implemented within the structure of an income tax by allowing a deduction for savings and by including dissavings within income.⁵⁴ This first method could most easily be implemented within the

(1969). In this Article, I will assume that one or the other method of taxing such increases is adopted as part of any realization income tax. Under this assumption, the accretion and realization income tax both yield the same hurdle rate. In the example, this is 28.57%.

52. The 40% hurdle rate is calculated as follows: $.40 (\text{hurdle rate}) = .20 / (1 - .5)$.

53. For an intriguing argument that the difference between income and consumption taxes involves the return for undertaking risk in particular and not the return from savings generally, see Joseph Bankman & Thomas Griffith, *Is the Debate Between an Income Tax and a Consumption Tax a Debate About Risk? Does it Matter?*, 47 TAX L. REV. 377 (1992).

54. Andrews, *supra* note 1, at 1149. The language of the two alternative ways of expressing this method of implementing a consumption tax differs but the results are the same. According to the first expression, net savings are excluded from income. According to the second expression, savings are included in income but they generate a deduction. In the language of IRS form 1040, the first expression backs out savings above the line (before the calculation of adjusted gross income), whereas the second expression backs out savings below the line (after the calculation of adjusted gross income but before the calculation of taxable income). In describing this

existing realization income tax structure by providing an immediate deduction for the full cost of any investment and inclusion for the proceeds from any investments that are liquidated and not rolled over into other investments. The second method of implementing a consumption tax is to tax income as it is earned but to exempt from tax the return of invested capital and the yield on investments. Thus, with the second method, there is no deduction for amounts invested and no inclusion when the investments are liquidated and the proceeds devoted to consumption. The first method of implementing a consumption tax is called the cash flow or qualified account method; the second is called the prepayment or yield exemption method.⁵⁵ Both of these methods are in use with the existing hybrid.⁵⁶

The substantial equivalence of the two methods of implementing the consumption tax was first suggested by Alvin Warren.⁵⁷ The equivalence can be seen in the following example, which assumes a discount rate of 20%. Consider the possibility of investing not in the project but in a savings account paying 20% interest, compounded annually. With the yield exemption method, an investor in the 30% tax bracket will have to earn \$142.86 and pay tax of \$42.86 to have \$100 to invest. If this amount is deposited in the savings account, the investor will have \$120 at the end of the year and will not have to pay any tax on this sum. With the cash flow method, the investor can invest the entire \$142.86, because she can invest before tax dollars. If she invests \$142.86, her savings account will grow to \$171.43 by the end of the year. To withdraw her savings from the bank, she will have to pay tax of \$51.43, again leaving her with \$120. Thus, according to Professor Warren, both methods of implementing a consump-

method of implementing the consumption tax, both the exclusion and deduction language are used.

55. The names for the different methods of implementing a consumption tax warrant attention. The cash flow method refers to the method's taxation of the taxpayer's cash flow. This method is also called the qualified account method because it resembles the tax treatment of qualified investment accounts, such as individual retirement accounts (IRAs) or 401K plans, under current law. Taxpayers are given a deduction for the full amount invested in a qualified account (or equivalently can exclude from income the amount invested), the increase in the account value is not taxed as it occurs, and the proceeds are taxed in full when withdrawn. The cash flow method treats every investment as a qualified account. The yield exemption method refers to the method's exclusion of the return on investments from the tax base. This method is also called the prepayment method because the denial of the upfront deduction is effectively the prepayment in present value, not nominal dollars, of the tax collected after the investment is made with the cash flow method. Since I find the terms cash flow and yield exemption method to be more descriptive than their alternatives, I will use them throughout.

56. For example, the tax treatment of pensions follows the cash flow method whereas that of durable goods follows the yield exemption method. BRADFORD, *supra* note 8, at 83-87.

57. Alvin C. Warren, *Fairness and a Consumption-Type or Cash Flow Personal Income Tax*, 88 HARV. L. REV. 931 (1975).

tion tax produce the same economic consequences. However, the equivalence between the yield exemption and cash flow methods of implementing the two consumption taxes is at best imperfect.

On a technical level, the equivalence obviously only holds if the taxpayer is subject to the same tax rate over the investment horizon.⁵⁸ There are also other less obvious but more technical reasons why the equivalence might not hold.⁵⁹

The most important difference between the two methods is that the tax burdens are not equivalent when the investment has a positive NPV.⁶⁰ In this case, the cash flow method is less favorable than the yield exemption method, because the former subjects the project's before-tax NPV to tax whereas the latter exempts it.⁶¹ This can be seen using the original example of a \$100 investment that pays \$150 in one year. Starting with the cash flow method, the initial \$100 investment is deductible so the after-tax cost of the investment is \$70. At maturity, after paying \$45 taxes, the investor is left with \$105. Discounted at 20% to time 0, when the investment is made, \$105 has a present value of \$87.50. Thus, the after-tax NPV of the investment under the cash flow method is \$17.50, the difference between the present value of the after-tax payoff, \$87.50, and the original after-tax cost, \$70, and the present value of the tax burden is

58. Michael J. Graetz, *Expenditure Tax Design*, in WHAT SHOULD BE TAXED: INCOME OR EXPENDITURE? 161, 172-75 (Joseph A. Pechman ed., 1980) [hereinafter Graetz, *Expenditure Tax Design*]; Michael J. Graetz, *Implementing a Progressive Consumption Tax*, 92 HARV. L. REV. 1575, 1598 (1979) [hereinafter Graetz, *Implementing a Progressive Consumption Tax*]; Warren, *supra* note 57, at 940.

59. Professor Warren recognized that the equivalence between the cash flow method and the yield exemption method would not hold if accumulation continues forever so there is never any consumption to tax; or consumption occurs without there ever having been prior earnings to tax; or taxpayers irrationally ignore the effects of taxation and insist on saving a given fraction of pretax wages for future consumption. Warren, *supra* note 57, at 940 n.38.

Michael Graetz has gone further, arguing that, while valid in theory, this equivalence will not hold in practice. Graetz, *Expenditure Tax Design*, *supra* note 58, at 172-75; Graetz, *Implementing a Progressive Consumption Tax*, *supra* note 58, at 1602. Professor Graetz argues that for the equivalence to hold, in addition to the above assumptions, all of the following unrealistic assumptions must be met as well: taxpayers have no wealth when the consumption tax is introduced; the tax system is closed (either the taxpayer exhausts his wealth by death, all bequests are classified as consumption on the taxpayer's final return, or an identical tax is imposed on bequests in a similar manner); taxpayers can borrow and lend unlimited amounts at the risk-free interest rate; all income can be classified as wage income or capital income. When any of these conditions are not met, the two methods will not be equivalent. Graetz, *Expenditure Tax Design*, *supra* note 58, at 173. Thus, according to Professor Graetz, the equivalence will not hold in practice and should not serve as the basic guide to implementation. *Id.*

60. Graetz, *Expenditure Tax Design*, *supra* note 58, at 172-75.

61. Jeff Sarnad, *Taxation of Income from Capital: A Theoretical Reappraisal*, 37 STAN. L. REV. 1023, 1029-30 (1985).

\$7.50.⁶² Contrast this result with that under the yield exemption method. The initial investment of \$100 does not generate an immediate deduction, so the after-tax cost of the investment is \$100. A \$100 investment in the project still pays \$150. However, the \$150 is received tax free. Discounted to the present, \$150 after one year has a present value of \$125. Thus, the NPV of the investment with the yield exemption method is \$25, the difference between the present value of the after-tax payoff, \$125, and the after-tax cost, \$100. The difference between the two after-tax NPVs, \$7.50, represents the tax on the \$25 before-tax NPV that is captured by the cash flow method but not by the yield exemption method.⁶³

Although the two methods of implementing a consumption tax differ in their treatment of the NPV of an investment, they produce the same hurdle rate for investments. Moreover, the hurdle rate with either method is the after-tax discount rate. To demonstrate these claims, assume that the after-tax discount rate is 20% with either the yield exemption or the cash flow method. Because the yield exemption method exempts the entire return on the investment from tax, the hurdle rate is 20%. In other words, since the return on the investment is not taxed, you do not have to do better than 20% before-tax to do better than 20% after-tax. But what about with the cash flow method? With a 30% tax rate, a \$100 investment will cost \$70 after-taxes. Thus, one year later, after paying taxes, the investor must be left with \$84. In order to have \$84 after-taxes, the investor must receive \$120.⁶⁴ Thus, the hurdle rate with the cash flow tax is also 20%. Hence, in contrast to the income tax, neither method of implementing the consumption tax creates a wedge between the investment's rate of return and the yield to the saver.

The difference in hurdle rates between the consumption and income tax regimes implies that projects with an IRR between 20 and 28.57% will be undertaken if there is a consumption tax but not if there is an income

tax. Thus, relative to a world without taxes, an income tax discourages investment by raising the hurdle rate, but a consumption tax does not.

C. Comparison of Different Treatments of Savings

There are two tax extremes and two methods of implementing each extreme. Thus, there are four extreme tax methods: the accretion income tax, the realization income tax, the cash flow consumption tax, and the yield-exemption consumption tax. The four tax methods are depicted in Figure 2 as being at opposite ends of a spectrum, defined by the treatment of savings, with two forked poles.

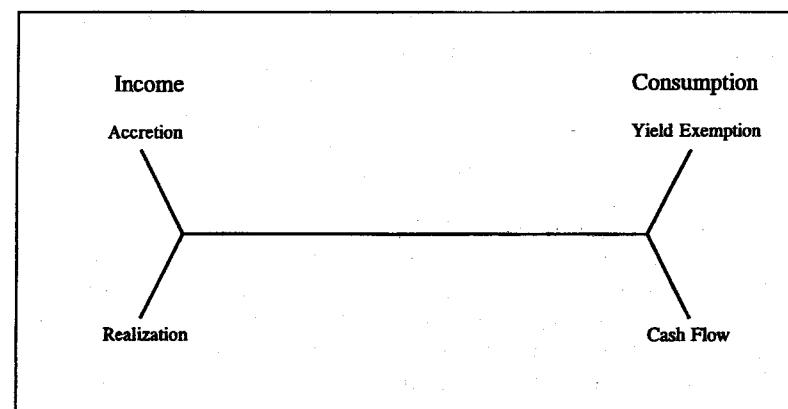


Figure 2—The Four Tax Methods

The differences between realization and accretion income taxes and cash flow and yield exemption consumption taxes are summarized in Table 1 in terms of their treatment of the elements of the return on an investment. All four tax methods exempt the return of capital (1 in Figure 1) from tax. Both income tax methods subject the ordinary return on invested capital (2 in Figure 1) to tax at full marginal rates whereas both consumption tax methods exempt the ordinary return from tax. The exemption of the ordinary return from tax with the consumption tax is done directly with the yield exemption method and indirectly with the cash flow method, through the immediate deduction for amounts invested. Both methods of implementing the income tax and the cash flow method subject

62. The present value of the tax burden is calculated as follows: $\$7.50 \text{ (tax burden)} = -\$30 + \$45/1.2$.

63. Although the before-tax cost of the investment is \$100 with the cash flow method and \$142.86 with the yield exemption method, this \$42.86 difference does not account for the difference in after-tax NPVs. If the investor had \$142.86 to invest before taxes, then with the yield exemption method, she would pay \$42.86 in taxes, leaving \$100 to invest in the project. With the cash flow method, after investing \$100 in the project, she would have an additional \$42.86 to invest. However, because the project can absorb only \$100 in investment, she can do no better than invest the remaining \$42.86 at 20%. Since the discount rate is also 20% (indeed, the definition of the discount rate is the rate that can be earned on excess funds), this additional investment has a NPV of 0. Thus, the after-tax NPV is still \$7.50 higher with the yield exemption method than with the cash flow method.

64. This is calculated as follows: $\$84 \div (1 - .3) = \120 .

the NPV of an investment (3 in Figure 1) to tax at full marginal rates,⁶⁵ whereas the yield exemption method exempts the NPV from tax. Thus, the difference between the two methods of implementing a consumption tax is that the yield exemption method exempts the NPV from tax, whereas the cash flow method taxes the NPV. It is because the NPV of an investment cannot be isolated from the return to effort and taxed at a different effective rate that the yield exemption method and hybrids using that method are intractable.

	Taxation Methods			
	Income Tax		Consumption Tax	
Elements of Return	Accretion	Realization	Cash Flow	Yield Exemption
Return of Capital	No	No	No	No
Ordinary Return	Yes	Yes	No	No
NPV	Yes	Yes ⁶⁶	Yes	No

Table I-Summary of Tax Poles Different Treatments of Saving

III. TREATMENT OF WASTING ASSETS BY TAX POLES

The above description of the tax poles used a very simple example to illustrate their differences. In that example, the investment was made in one year with the return of capital and the profit received during the following year. Although the hybrids later described in this Article can all handle that simple investment, that example is not sufficiently complex to illustrate their workings generally. In order to illustrate the hybrids under more general circumstances it is necessary to use a more complex investment project, such as an investment in a long-lived asset that declines in value over time. Such assets are called wasting or depreciable assets. In

65. The difference between an accretion income tax and an income tax with a realization requirement is that the latter defers tax on the NPV until realization, which reduces the present value of the tax burden on positive NPV investments.

66. At reduced rates if the NPV is positive.

this part, the four tax methods' treatments of wasting assets are described by deriving the hurdle rate with each method. However, before deriving hurdle rates the tax methods' various capital recovery provisions are described. This is done to facilitate understanding of the hybrids, because the first two hybrids combine the capital recovery provisions of their two poles and the third hybrid uses the income pole's capital recovery provision. This part concludes by assessing the tax poles using the five criteria.

A. Capital Recovery Provisions of the Four Tax Methods

The capital recovery provisions for the two methods of implementing the consumption tax are unaffected by the introduction of multi-period assets. However, the capital recovery provisions for the income tax are affected, because the income tax subjects periodic changes in value to tax. In the simple one-period example there were no intermediate periods between the making of the investment and its completion during which the value of the project had to be assessed and any change taken into account and taxed. With longer investment projects, the income tax requires such periodic assessments, which the accretion and realization methods assess in different ways.

The accretion income tax allows a deduction for the decline in value of the taxpayer's business assets. At the end of each period, the value of the assets is ascertained and if the difference in value between the beginning and the end of the period is negative, it generates a deduction; if the difference is positive, it is included in income and subject to tax. Thus, net taxable income with an accretion income tax is the sum of the cash flow received and the change in the value of the taxpayer's assets over the period.⁶⁷ Given a flat tax at rate τ ,⁶⁸ the corresponding tax liability is the product of net income and the tax rate.⁶⁹ In practice, this would entail an appraisal of the expected cash flows from any business in which the asset is employed. Because of the difficulty and expense of appraising unique and infrequently-traded property, the accretion method cannot

67. Net taxable income, $I_A(t)$, is calculated as follows:

$$I_A(t) = [C(t) + \dot{A}(t)].$$

68. Progressive tax regimes are dealt with later. See *infra* note 100 and accompanying text.

69. The tax liability, $T_A(t)$, is:

$$T_A(t) = \tau[C(t) + \dot{A}(t)].$$

generally be satisfied in practice. It can, however, be approximated by the realization method through the depreciation schedule.⁷⁰

The depreciation allowance offsets the taxpayer's original investment against the gross income received in later years so as to limit the taxpayer's net taxable income to the excess of revenues over expenses.⁷¹ To measure the taxpayer's expenses accurately over time, the annual depreciation allowance should reflect the anticipated decline in economic value of the capital equipment over the year.⁷² Such depreciation is called economic or sinking fund depreciation.⁷³ The assumption that economic depreciation matches the decline in the value of the asset over time implies that the machine's adjusted basis, the difference between its original cost and accumulated depreciation (also called its book value), is always equal to its anticipated market value.⁷⁴ The calculation of net taxable income and tax liability with the realization income tax are similar to those calculations for the accretion income tax. The difference is that the estimated change in value replaces the actual change.⁷⁵ Since the realization income tax uses economic depreciation, net taxable income is the difference between

70. In a certain world with perfect knowledge, the accrual income tax can be replicated using the depreciation schedule. In an uncertain world or one with only imperfect knowledge, it can only be approximated. See JEFF STRNAD, *TAX DEPRECIATION AND RISK* 27 (California Institute of Technology Social Science Working Paper No. 765, 1991).

71. See, e.g., CHIRELSTEIN, *supra* note 42, ¶ 6.08, at 143.

72. See *id.* ¶ 6.08, at 148-49.

73. Paul A. Samuelson, *Tax Deductibility of Economic Depreciation to Insure Invariant Valuations*, 72 J. POL. ECON. 604 (1964). Economic depreciation must be indexed for inflation. *Id.*; see also CHIRELSTEIN, *supra* note 42, ¶ 6.08(b), at 143-44. The required adjustments are described by John B. Shoven & Jeremy I. Bulow, *Inflation Accounting and Nonfinancial Corporate Profits: Physical Assets*, 3 BROOKINGS PAPERS ON ECON. ACTIVITY 557, 565-75 (1975).

74. The depreciation schedule, which is the reduction in the book value of the asset over time, is calculated by differentiating the expected market value of the asset, $E[A(t)]$, with respect to time. Because economic depreciation, $D_E(t)$, is positive, it is the negative of the derivative. Thus,

$$D_E(t) = -E[A(t)],$$

where the dot over the function A indicates the derivative of A with respect to time.

75. Thus, the estimated change, $-D_E(t)$, replaces the actual change, $-\dot{A}(t)$ in *supra* notes 67 and 69. Hence, net taxable income, $I_R(t)$, is

$$I_R(t) = C(t) - D_E(t),$$

and the tax liability, $T_R(t)$, is

$$T_R(t) = \tau[C(t) - D_E(t)].$$

cash flow and the depreciation allowance, and the corresponding tax liability is the product of net income and the tax rate.⁷⁶

The capital recovery provisions of the consumption tax can also be described. Starting first with the cash flow method, the cash flow consumption tax permits the cost of new equipment to be immediately written off with no further depreciation deductions permitted.⁷⁷ Thus, the taxable amount using the cash flow method is the difference between cash flow and the deductions allowed by the cash flow tax.⁷⁸ The corresponding tax liability is the product of taxable income and the tax rate.⁷⁹

The yield exemption method is very simple to describe. As its name implies, the cash flow produced by investment escapes tax. Correspondingly, the investment is made with after-tax dollars and there is no allowance for the wasting away of the asset.⁸⁰ Thus, net taxable income with the yield exemption method is always 0.⁸¹

B. Saving Incentives Under the Four Tax Methods

This section derives saving incentive ratios, defined as the ratio of the after-tax discount rate to the hurdle rate, for the four tax extremes. The reason for deriving such ratios is that a neutral tax system's treatment of investment can be characterized by its saving incentive ratio since it sub-

76. Net taxable income, $I_R(t)$, is given by the following equation:

$$I_R(t) = C(t) - D_E(t).$$

where $C(t)$ is the cash flow with $D_E(t)$ defined as in note 74 *supra*.

77. Thus, the cash flow method produces the following schedule of deductions:

$$D_C(t) = \begin{cases} B, & t=0 \\ 0, & t>0. \end{cases}$$

78. Thus, net income, $I_C(t)$, is:

$$I_C(t) = C(t) - D_C(t).$$

with $D_C(t)$ defined as in note 77 *supra*.

79. Thus,

$$T_C(t) = \tau[C(t) - D_C(t)],$$

with $D_C(t)$ defined as in note 77 *supra*.

80. Thus,

$$D_Y(t) = 0.$$

81. Thus,

$$T_Y(t) = 0.$$

jects all investments to the same tax treatment. Thus, because the four poles and three hybrids are all neutral, as is subsequently established, each one can be characterized by its saving incentive ratio. In addition, the claims that the various hybrids combine two extremes and have these extremes at their poles can be established by showing that the saving incentive ratio for each hybrid is a linear combination of the savings incentive ratios for the two extremes and that the two poles of each hybrid correspond to the two extremes. The story that emerges in this subsection for more general investment projects is the same one that emerged with the one-period example. Relative to a world without taxes, both methods of implementing an income tax discourage saving whereas neither method of implementing a consumption tax does.

Denote by h , the before-tax hurdle rate for investments. Thus, h is the before-tax return that an investment must produce in order for the investment to have a 0 NPV. The derivation of the hurdle rate in the presence of an income tax can be made intuitive by using a bond that sells for par (face value), pays an annual coupon at rate h , and thus yields an after-tax coupon of $(1-\tau)h$. Because the marginal investment is a 0 NPV investment,⁸² both methods of implementing the income tax will have the same hurdle rate.⁸³ Using a subscript R to denote a realization income tax and a subscript A to denote an accretion income tax, the hurdle rates for the two methods of implementing the income tax, expressed in terms of the after-tax discount rate, r , are given by:

$$h_R = h_A = \frac{r}{(1-\tau)}. \quad (1)$$

Equation 1 implies that the before-tax discount rate will exceed the after-tax discount rate in order to reflect the impact of taxes. In effect, the before-tax discount rate is grossed-up to compensate for taxes. The discount rate is grossed-up because the income tax subjects the before-tax return to tax at the full marginal rate as can easily be seen by rewriting equation 1:

$$r = h_A(1-\tau) = h_R(1-\tau). \quad (2)$$

82. This is a standard assumption. Positive NPV projects are hard to find, leaving many investors with excess cash that earns a normal return. RICHARD A. BREALEY & STEWART C. MYERS, *PRINCIPLES OF CORPORATE FINANCE* 289 (4th ed. 1991).

83. Both methods have the same hurdle rate because the accrual method differs from the realization method only in the tax treatment of a project's NPV and the hurdle rate is the total rate of return for which the project has a 0 NPV.

To calculate the hurdle rate for the cash flow method, consider again a bond that sells at par and pays an annual coupon at rate h . As with the income tax, the after-tax coupon on the bond is $(1-\tau)h$. However, because of immediate expensing with the cash flow tax, the after-tax cost of purchasing the bond is $\$(1-\tau)$ for each dollar of face value, instead of $\$1$, as it is with the income tax. Accordingly, the after-tax discount rate on the bond and throughout the economy for investments of equivalent risk is given by dividing the after-tax coupon by the after-tax cost:

$$r = \frac{(1-\tau)h}{(1-\tau)} = h. \quad (3)$$

Thus, the hurdle rate for the cash flow method, defined by a subscript C, is:

$$h_C = r. \quad (4)$$

As is clear from equation 4, there is no gross-up with the cash flow method. The hurdle rate is equivalent to the after-tax discount rate because the ordinary return is exempt from tax, even though the NPV is subject to tax. However, since the decision rule is to accept projects with a positive NPV, the tax only makes these projects less lucrative; it does not make them unacceptable. Thus, with the cash flow tax, the hurdle rate equals the after-tax discount rate, as it does without taxes.

The hurdle rate for the yield exemption method of implementing a consumption tax, denoted by a subscript Y, equals the after-tax discount rate because investment returns are outside the tax base. Thus,

$$h_Y = r, \quad (5)$$

which is the same formula for the hurdle rate as with the cash flow tax. However, as mentioned above, the two methods are not equivalent. In contrast to the cash flow method, the yield exemption method exempts both the ordinary return and the NPV from tax. Nonetheless, both the cash flow and the yield exemption method have the same hurdle rate because it is the taxation of the ordinary return only, and not the taxation of the NPV, that determines the hurdle rate.

Because hurdle rates vary across investments as risk changes, hurdle rates are a flawed tool for measuring investment incentives. A better means of measuring the incentive any tax system provides for investment is the ratio of the after-tax discount rate, r , to the hurdle rate, h . The advantage of using a ratio is that it eliminates the riskiness of each investment from the measure because risk affects both the numerator and the denomi-

nator. The lower this ratio, denoted by ρ , the weaker the incentive to save. Thus, for an income tax, the saving incentive ratio is:

$$\rho_R = \rho_A = 1 - \tau. \quad (6)$$

For a consumption tax, the saving incentive ratio is:

$$\rho_T = \rho_C = 1. \quad (7)$$

The saving incentive ratio is related to the wedge between saving and consumption introduced by the tax, the tendency for a tax system to encourage consumption over saving. The wedge introduced by the tax system is the difference between the saving incentive ratio and one. For an income tax, the wedge is the tax rate, τ , whereas for the consumption tax, there is no wedge. Thus, the income tax discourages saving relative to a consumption tax.

C. Applying the Five Criteria to the Tax Extremes

This section assesses the four tax extremes using the five desirable criteria for a hybrid.

Neutrality—A tax system is neutral if all taxpayers accept all independent investment projects with IRRs above the social hurdle rate and reject all those with lower IRRs.⁸⁴ Several corollaries follow from a neutral tax system: The tax laws neither encourage nor discourage investments in wasting assets relative to investments in financial assets, nor do they distinguish among investments based on their term, nor do they encourage taxpayers to invest in certain assets and avoid other assets according to their marginal tax rate.⁸⁵ These qualities are desirable because they imply that economic considerations, not tax considerations, dictate investment activity.⁸⁶

The neutrality of a realization income tax is well known. In a brief but highly influential article, Paul Samuelson showed that a proportional income tax left undistorted the choice among different assets.⁸⁷ As long as economic depreciation is used, the realization income tax will partition all candidate investments between acceptable and unacceptable depending upon whether their rate of return exceeds or is less than the hurdle rate. This claim can be demonstrated using a simple one-period example. Denot-

ing the initial cash outflow as C_0 and the cash inflow one period later as C_1 , the net present value of an investment project given a realization income tax at rate τ and an after-tax discount rate r is given by the following equation:

$$NPV_R = -C_0 + \frac{[C_1 - (C_1 - C_0)\tau]}{1+r}. \quad (8)$$

Equation 8 states that the NPV is the present value of the amount received after paying taxes less the cost of the original investment. Equation 8 implies that the NPV is greater than, less than, or equal to zero as the right hand side of equation 8 is greater than, less than, or equal to zero. Substituting the expression for the realization income tax's hurdle rate as a function of the after-tax discount rate, equation 1, into equation 8 and simplifying, the resulting expression implies that:

$$NPV \begin{matrix} \geq \\ < \end{matrix} 0 \text{ as } C_1 \begin{matrix} \geq \\ < \end{matrix} (1+h)C_0. \quad (9)$$

Equation 9 states that all projects with a return above the hurdle rate are acceptable (have a positive NPV), whereas all those with a lower return are not. The demonstration of neutrality for a simple one-period investment project is of crucial importance because any multi-period project can be decomposed into a series of such projects.⁸⁸ Therefore, it follows that the realization income tax is neutral.

The argument that the accretion income tax is neutral is straightforward and follows from the demonstration for the realization income tax. The accretion income tax differs from the realization income tax in that the before-tax NPV is taxed in period 0. For tax rates below 100%, the sign of the after-tax NPV is the same with the accretion tax as with the realization tax. Thus, the accretion income tax is also neutral.

The neutrality of the different consumption tax methods is also well known and easy to demonstrate.⁸⁹ For the cash flow tax, because the initial expenditure is immediately deductible and the total return is fully taxed, the net present value of a one-period investment is given by the following formula:

$$NPV_C = -C_0(1 - \tau) + \frac{C_1(1 - \tau)}{1+r}. \quad (10)$$

84. MUSGRAVE & MUSGRAVE, *supra* note 20, at 304; Samuelson, *supra* note 73, at 605.

85. See BRADFORD, *supra* note 8, at 178-79.

86. See *id.*

87. Samuelson, *supra* note 73, at 604.

88. Arnold C. Harberger, *Tax Neutrality in Investment Incentives*, in THE ECONOMICS OF TAXATION, *supra* note 9, at 299, 308-09.

89. Professor Harberger attributes this result to Professor Musgrave, 1959. *Id.* at 306.

Rearranging terms, equation 10 implies that:

$$NPV_c \geq 0 \text{ as } C_1 \geq C_0(1+r). \quad (11)$$

Because the hurdle rate with a cash flow tax equals the after-tax discount rate,⁹⁰ investors subject to the cash flow tax will approve all projects above the hurdle rate and reject all those below it, which is the definition of neutrality provided above.

With the yield exemption tax, there is no deduction for the amount invested and the investment return is untaxed. Thus, the net present value of the one-period investment project is:

$$NPV_Y = -C_0 + \frac{C_1}{1+r}. \quad (12)$$

Rearranging terms, equation 12 implies that:

$$NPV_Y \geq 0 \text{ as } C_1 \geq C_0(1+r). \quad (13)$$

Thus, the yield exemption tax is neutral because it would lead investors to approve all projects above the hurdle rate, which is the after-tax discount rate,⁹¹ and reject all of those below it. Therefore, all four tax extremes are neutral.

Tractability—A tax system is tractable when it is simple to implement and enforce. For a system to be tractable it must be possible to observe and to measure whatever the system seeks to tax.⁹² In addition, if a taxpayer is subject to more than one tax rate, it must be possible to allocate items to the different tax categories.

To assess the tractability of a tax system, I will use a simple example throughout this Article. Consider an entrepreneur, Betty, who is going to start a small business which will require her full working time. Betty's business also requires \$300,000 to purchase equipment, which Betty will invest. New businesses are risky, and failure is more common than success. Betty, however, is both good and lucky, and her business is an immediate

90. This was established by equation 7.

91. That the hurdle rate with the yield exemption method is the after-tax discount rate was established by equation 5.

92. We usually speak of taxing income. However, the use of the term income to refer to that which is being taxed creates confusion when only one of the possible tax systems is an income tax.

success, from which she earns \$100,000 a year. For a tax system to be tractable, it must be easy to calculate Betty's tax liability under it.

That assessment is most complicated under an accretion income tax. One very difficult problem for such a tax is the treatment of human capital.⁹³ Putting that issue to one side, the value of the business must be assessed when it starts and each year thereafter. With an accretion income tax, Betty would not be taxed as the business generates cash but as the value of her business changes. This would require periodic appraisals of the business, which would be very expensive and inexact. Even if the accretion tax is not used on the revenue side, and Betty is taxed on the \$100,000 as it is received, without estimating the present value of the business, it would still be difficult to implement an accretion tax. To avoid double taxation Betty must have some way of recovering her \$300,000 investment. With an accretion income tax, the investment is recovered as the assets purchased with the money decline in value, which would require regular appraisals of the equipment to determine market value. Because such appraisals would be difficult, expensive, and inexact, the accretion income tax is not tractable.

Unlike the accretion income tax, the realization income tax is tractable. With an accretion income tax, Betty would be taxed on the \$100,000 she earns each year and would receive an annual depreciation deduction that would partially offset that income. Assuming that the equipment has a 10-year useful life, and that it remains fully productive until it dies, then economic depreciation is sinking fund depreciation with a 10-year life. Assuming an interest rate of 10%, the depreciation schedule over the ten-year life would be as follows:⁹⁴

93. See, e.g., David S. Davenport, *Depreciation Methods and the Importance of Expectations: Implications for Human Capital*, 54 TAX NOTES 1399, 1401 (1992); John K. McNulty, *Tax Policy and Tuition Credit Legislation: Federal Income Tax Allowances for Personal Costs of Higher Education*, 61 CAL. L. REV. 1 (1973); Paul B. Stephan III, *Federal Income Taxation and Human Capital*, 70 VA. L. REV. 1357, 1375 (1984).

94. The calculations assume that the equipment is placed in service on January 1, year 1 and that a full year's depreciation is allowed for year 1. This differs from the tax convention that an asset is assumed to be placed in service in the middle of the period, regardless of when it is actually placed in service, and that only half of the first period's depreciation will be allowed. Ignoring the mid-period convention simplifies the calculation without substantively changing the results.

Year	Depreciation	Year	Depreciation
1	\$18,824	6	\$30,316
2	\$20,706	7	\$33,347
3	\$22,777	8	\$36,682
4	\$25,054	9	\$40,350
5	\$27,560	10	\$44,385

Betty's taxable income each year would be the difference between her \$100,000 earnings and her depreciation deduction. In the first year, she would receive a depreciation deduction of \$18,824, which would yield taxable income of \$81,176. Assuming a 30% tax rate, Betty would pay \$24,353 in taxes, leaving her with \$75,647 after-tax. In the second year, Betty would have taxable income of \$79,294, the difference between \$100,000 and \$20,706, and would pay taxes of \$23,788, which would leave her with \$76,212 after-taxes. Because the tax liability is easy to assess, the realization income tax is tractable.

Like the realization income tax, the cash flow consumption tax is tractable. With the cash flow method, Betty receives an immediate deduction for any capital she invests. Thus, in year 1, Betty would receive a \$300,000 deduction. This deduction would more than offset her income, leaving her with a \$200,000 tax loss for the year. Given a 30% tax rate, and assuming that tax refunds are given for negative income,⁹⁵ Betty would receive a \$60,000 tax refund from the government in year 1. Thus, excluding the \$300,000 investment, Betty would earn \$160,000 after-tax. In year 2, Betty would have \$100,000 income and no deductions against income. Thus, she would have a tax liability of \$30,000, leaving her with \$70,000. Thus, with the cash flow method, Betty's tax liability is also simple to assess.

Unlike the cash flow consumption tax, the yield exemption consumption tax is not tractable. The problem arises because the yield exemption tax exempts the entire return to saving but not earnings from entrepreneurial effort and labor (jointly referred to as effort) from tax. Accordingly, Betty would like to attribute the full \$100,000 to the \$300,000 capital investment because it would then be exempt from tax, whereas the Treasury would like to attribute the full \$100,000 to Betty's effort and tax it at the full rate. However, it would be inaccurate to attribute the full

95. The alternative to permitting tax refunds generally is a system of loss carryforwards and backwards similar to what currently exists for corporations. See I.R.C. § 172 (1988 & Supp. V 1993). Unless interest is provided for losses carried forward to a later tax year, which the tax law currently does not do, neutrality is lost.

\$100,000 to capital investment, as Betty would suggest, because some of those earnings are undoubtedly due to Betty's efforts and if Betty were not working in her own business she would be employed elsewhere earning a salary. Similarly, it would be wrong to attribute the entire \$100,000 to Betty's effort because some of the earnings are undoubtedly due to the \$300,000 capital, which if not invested in Betty's business, would be invested elsewhere producing a return. The difficult, perhaps intractable, question is how to apportion the \$100,000 earnings between capital and Betty's efforts.⁹⁶ Unfortunately, with a cash flow consumption tax, such an apportionment must be made to assess Betty's tax liability.⁹⁷ Because such allocations would be difficult to make on a principled basis and would require expensive monitoring and enforcement actions, the yield exemption consumption tax fails to meet the tractability standard.

The opposing incentives of Betty and the Treasury in apportioning her earnings under the yield exemption method consumption tax can be understood in terms of the investment's NPV and the return to Betty's effort. Betty would argue that her effort produced little or no return, not because she is without skills but because she devoted her time to pursuits that did not payoff, but that the capital is yielding a high return because it was fortuitously invested. On the other hand, the Treasury would argue that the capital was poorly invested and so is producing no or little return, but Betty's efforts are paying off handsomely. By observing her cash investment in the business and cash flow from it, we will ultimately know how much Betty makes from the business. Moreover, because the ordinary return is a known amount, the difference between Betty's net cash flow and the ordinary return on her investment, which is the sum of her earnings from effort and the NPV of her investment, can be directly calculated. However, dividing that amount between effort and NPV cannot easily be done. Unfortunately, the yield exemption method requires that we separate the two because the first is taxed at the full rate whereas the second is exempt from tax. Thus, the yield-exemption method fails the tractability criterion because it introduces a distinction between the NPV of an investment and the earnings produced by effort by taxing the latter at full marginal rates and exempting the former. Because there is no practical way of implementing that distinction, the criterion of tractability is not met.

96. If there are synergies between capital and effort in Betty's business, then there is no single correct apportionment.

97. Obviously, looking at what Betty pays herself will not provide the right answer. Betty will have an incentive to pay herself a low salary and take more out in profits, which would be taxed at a lower rate than wages.

Therefore, only two of the four tax extremes are tractable. Both the realization income tax and the cash flow consumption tax are tractable, whereas the accretion income tax and the yield exemption consumption tax are not. The accretion income tax is not tractable because it requires regular appraisals of Betty's equipment; the yield exemption method is not tractable because it taxes the NPV of an investment at a different rate than the return to effort which cannot be separated from it.

Fiscal Policy—The fiscal policy criterion requires that it be feasible for new investment to receive a different tax treatment than existing investment. To assess whether this criterion is met assume that the government decides to stimulate investment in year 3 and Betty responds by investing an additional \$100,000 in her business. To satisfy the criterion, a tax method must have a simple way to reduce Betty's tax on the new investment and tax her earnings, which are assumed to increase to \$180,000.

Consistent with the tax extremes, there is no way to stimulate or discourage savings. This is easiest to see for the yield exemption consumption tax. Since the return to saving is completely untaxed, any taxation of the return is inconsistent with the yield exemption method. It might be thought that either form of the income tax could encourage savings by reducing the tax rate on savings or by accelerating depreciation. Although either change would stimulate investment by reducing the tax burden, it would also move the tax system from the income extreme in the direction of the consumption extreme. The resulting system would no longer be one of the tax poles but a hybrid. The same logic also applies to the cash flow method of implementing a consumption tax when investment is discouraged.⁹⁸

Transparency—A tax system is transparent when it is relatively easy to understand how it operates. Compared to the tremendous complexity of the current tax system, all of the tax extremes are paragons of simplicity. Both the income tax and the consumption tax pole could be implemented with large improvements in transparency. This is because the current system's opacity is largely a result of inconsistencies between provisions introduced to stimulate investment that had been discouraged by what was basically an income tax and other provisions introduced to prevent what

98. Too much should not be made of the failure of the tax extremes to meet this criterion. It is the narrowness of their definition that causes this result, rather than any failure inherent in the extremes. Any tax system defined by a single point in the continuum between income and consumption taxes would have this fault.

was perceived as tax-motivated investment brought about by the first set of provisions.⁹⁹

Progressivity—The last criterion, progressivity, requires that it be possible to implement not only flat but also progressive tax regimes without sacrificing the other criteria. The principal threat introduced by a progressive tax schedule is to neutrality. A tax system is neutral only if the taxpayer is subject to the same marginal tax rate in each period. If an individual's tax rate changes over time, she has an incentive to transfer earnings from years in which she is subject to high marginal tax rates to years in which she is subject to low rates. Such an individual might choose a project with a lower social return than is available on a second project because the return on the first project is taxed when her tax rate is lower. Although this problem is greatest with the cash flow method, because it produces the greatest variation in taxable amount, it exists for all tax systems.

Fortunately, the solution to this problem is well known. What is required is a rule that averages a taxpayer's liability over more than one period. A well constructed averaging rule would allow a multi-period progressive hybrid to capture lifetime consumption/income. The main requirement for such a rule is that it account for the time value of money.¹⁰⁰ With such a rule in place, an investor will know that she will be subject to one single tax rate over a long period of time. Thus, there will be no tax-induced incentive to shift the profile of payoffs. Therefore, all four tax methods will satisfy the progressivity criterion if such an averaging system is adopted.

The following table summarizes the assessment of the four tax extremes using the five criteria. The table indicates that none of the methods satisfies the fiscal policy criterion. The realization income tax and the cash flow method satisfy the other four criteria. The accretion income tax and the yield exemption method both also fail the tractability criterion. It is this intractability that accounts for the income tax's realization require-

99. See *infra* Part IV.B.

100. The best known example of such a rule comes from William Vickery, *Tax Simplification Through Cumulative Averaging*, 34 *LAW & CONTEMP. PROBS.* 736 (1969).

ment. It is also responsible for the difficulty in using the yield exemption method in a hybrid tax.

Criteria	Taxation Methods			
	Income Tax		Consumption Tax	
	Accretion	Realization	Cash Flow	Yield Exemption
Neutrality	Yes	Yes	Yes	Yes
Tractability	No	Yes	Yes	No
Fiscal Policy	No	No	No	No
Transparency	Yes	Yes	Yes	Yes
Progressivity	Yes	Yes	Yes	Yes

Table II-Summary of Evaluation of Tax Poles

IV. HYBRID TAXES GENERALLY

The focus of this part is hybrid taxes generally. The first section of this part briefly provides the arguments against the tax poles and the case for a hybrid tax of some form, and the second section details the flaws in the existing hybrid.

A. The Case for a Hybrid Tax

The alternatives to a hybrid tax are to adopt either the income pole or the consumption pole. Yet neither polar position has secured a consensus in its support. There are three principal criticisms of the income extreme. First, some commentators view that tax as unfair, because by taxing the return to saving it penalizes those who receive much of their lifetime income in the early years of their working life and then live off their savings.¹⁰¹ Other commentators criticize the income tax's penalty on savings

101. E.g., ANTHONY B. ATKINSON & JOSEPH E. STIGLITZ, LECTURES ON PUBLIC ECONOMICS 71 (1980); Andrews, *supra* note 1, at 1167. But see Barbara H. Fried, *Fairness and the Consumption Tax*, 44 STAN. L. REV. 961 (1992).

as inefficient because it discourages investment.¹⁰² Still other commentators combine the inefficiency and inequity critiques and argue that the income tax discriminates against future generations, who are the beneficiaries of current investment but cannot represent themselves in any contemporary tax policy debate.¹⁰³

The opposite pole, the consumption tax, has also failed to secure a consensus, although it has attracted more adherents than the income extreme.¹⁰⁴ Proponents of the consumption tax point first to the ease of administration with the cash flow method of implementing a consumption tax, which would be simple to implement because tax consequences follow cash, not accounting conventions.¹⁰⁵ Although these proponents argue that the cash flow tax would be fair and efficient, many students of tax policy have their doubts.¹⁰⁶ Given the tendency for the wealthy to save more than the poor and for the wealthy to own proportionately more capital, some commentators criticize the move to a cash flow tax as a transfer of wealth from the rest of society to the most affluent.¹⁰⁷ Although such a redistribution could be offset by raising tax rates at the top, the ability to pay rationale for an income tax still has a strong appeal.¹⁰⁸ Raising rates and increasing progressivity might tax those who work and save but those who live largely or entirely off of their investments would pay little or nothing in taxes.¹⁰⁹ The efficiency case for the consumption tax has also been challenged. Because any tax interferes with some incentives, designing an optimal tax system requires making trade-offs.¹¹⁰ A consumption

102. See Michael J. Boskin, *Taxation, Saving, and the Rate of Interest*, 86 J. POL. ECON. S3, S24 (1978); Fried, *supra* note 101, at 961-62; McCaffery, *supra* note 6, at 1166-67.

103. McCaffery, *supra* note 6, at 1172.

104. *Id.* at 1166-67. Prominent proponents of the consumption tax include ALAN J. AUERBACH & LAURENCE J. KOTLIKOFF, DYNAMIC FISCAL POLICY 78 (1987); BRADFORD, *supra* note 8, at 312-15; Andrews, *supra* note 1, at 1120; Fullerton et al., *supra* note 8, at 22; Lawrence H. Summers, *Capital Taxation and Accumulation in a Life Cycle Growth Model*, 71 AM. ECON. REV. 533, 533 (1981).

105. David F. Bradford, *The Case for a Personal Consumption Tax*, in WHAT SHOULD BE TAXED: INCOME OR EXPENDITURE?, *supra* note 58, at 75, 109.

106. Fried, *supra* note 101, at 966-67; Alan Gunn, *The Case for an Income Tax*, 46 U. CHI. L. REV. 370, 374-78 (1979); McCaffery, *supra* note 6, at 1170-73; Warren, *supra* note 57, at 946.

107. William D. Andrews, *Fairness and the Personal Income Tax: A Reply to Professor Warren*, 88 HARV. L. REV. 947, 957 (1975); Fried, *supra* note 101, at 974.

108. SIMONS, *supra* note 35, at 139; Richard Goode, *The Superiority of the Income Tax*, in WHAT SHOULD BE TAXED: INCOME OR EXPENDITURE?, *supra* note 58, at 49, 72; Gunn, *supra* note 106, at 378-79; McCaffery, *supra* note 6, at 1165.

109. McCaffery, *supra* note 6, at 1166.

110. Bradford, *supra* note 4, at 24.

tax that raised the same revenue as an income tax would have to charge higher rates, which would further discourage work.¹¹¹

The failure of either pole to attract overwhelming support implies that the tax system will remain in the middle. However, aside from being a concession to practical realities, a hybrid might also be an appropriate policy goal.¹¹²

Until recently, most commentators took the position that one pole or the other pole was the ideal tax system.¹¹³ According to this view, our current tax system was a terrible mistake and any hybrid, if not as bad, was at least still mistaken.¹¹⁴ Rejecting this view, some commentators have taken the position that a hybrid of some form is not only a practical necessity but might be desirable. The first commentator to make such an argument was David Bradford, who argued that given the second best nature of tax policy, which requires balancing distortions against each other, a hybrid tax is likely to be more efficient than either pole.¹¹⁵ Recently, Edward McCaffery has explored the normative underpinnings of hybrid tax schemes by concentrating on the reasons for saving,¹¹⁶ and Deborah Weiss has proposed a progressive tax system that uses separate schedules for earned and investment income.¹¹⁷ Although these authors are in the minority, it is a growing minority. Moreover, this Article, which shows that a hybrid tax can be fairer and more efficient than the current hybrid, might win more adherents to the middle ground. Therefore, given the failure of either pole to secure a consensus, it is appropriate to look at how the middle ground can be improved, not marginally but comprehensively. However, before turning to that task, I describe why the current hybrid is widely considered to be flawed.

B. Flaws in the Existing Hybrid

Tax scholars rarely reach a consensus on issues of tax policy. Consequently, it is surprising that there is such strong agreement that the current hybrid is seriously flawed. Although some critics attack the status quo tax

system generally or aspects unrelated to the hybrid,¹¹⁸ many focus on the hybrid. Since the essential difference between an income tax and a consumption tax is the treatment of savings,¹¹⁹ criticisms of the hybrid itself are criticisms of the current treatment of saving.

Although some commentators criticize the tax burden on savings, the tax level is not the focus of the most trenchant criticisms. As several commentators have stressed, the principal fault with the current hybrid is its lack of neutrality that arises from the inconsistent tax treatment of investments.¹²⁰ Some investments receive income tax treatment, others consumption tax treatment, and many receive treatment between the two extremes.¹²¹ In addition, some investments receive even less favorable treatment than an income tax and some receive even more favorable treatment than a consumption tax.¹²² The harm resulting from the inconsis-

118. Although there is much criticism that the rate structure is unfair or that the base should be broader or narrower, these criticisms have little to do with the hybrid. There are, for example, intense debates over the proper tax treatment of fringe benefits, employee business expenses, and casualty losses. Thomas D. Griffith, *Should "Tax Norms" Be Abandoned? Rethinking Tax Policy Analysis and the Taxation of Personal Injury Recoveries*, 1993 WIS. L. REV. 1115; Daniel I. Halperin, *Business Deduction for Personal Living Expenses: A Uniform Approach to an Unsolved Problem*, 122 U. PA. L. REV. 859 (1974); William A. Klein, *The Deductibility of Transportation Expenses of a Combination Business and Pleasure Trip—A Conceptual Analysis*, 18 STAN. L. REV. 1099 (1966). These all involve the question what is consumption and how to measure it. They do not involve the line between consumption and investment.

119. Aaron et al., *supra* note 1, at 1.

120. Gann, *supra* note 15, at 81 (a consensus exists that the tax system should be more neutral in its treatment of investments); McCaffery, *supra* note 6, at 1175-76.

121. McCaffery, *supra* note 6, at 1152-54. For example, consumer durables (including equity-financed, owner-occupied housing) receive treatment between income and consumption tax treatment. Consumption tax treatment is largely provided by the exclusion of the imputed rental value from income and by the reduced rates on appreciation because of the reduced tax rate on capital gains. See Bradford, *supra* note 105, at 85. However, the tax treatment is not as advantageous as a consumption tax, which would require complete exclusion of appreciation from the tax base. Therefore, since appreciation is taxed, even though it is deferred and taxed at reduced rates, the treatment is less favorable than consumption tax treatment.

122. For example, gambling receives less favorable treatment than an income tax would imply. I.R.C. § 165 (1988) denies taxpayers a deduction for gambling losses in excess of their winnings, I.R.C. § 165(d) (1988), with no carryover of losses from year-to-year. Because even a successful gambler is likely to have some losing years, and because no deduction is permitted in those years, gamblers are taxed on more than their long-run winnings. They are, therefore, subject to worse treatment than an income tax would provide.

Tax treatment more favorable than what would be available under a consumption tax is provided for investments in timber. Investments in timber produce an immediate deduction. However, when the timber is harvested the income is subject to tax as long-term gain at preferential tax rates. I.R.C. § 631 (1988); BRADFORD, *supra* note 8, at 203. More favorable tax treatment than is available under a cash flow method consumption tax can also arise for mining investments through percentage depletion allowances. Percentage depletion, which is unaffected by the taxpayer's cost of acquisition, permits the taxpayer a deduction of a given percentage of its gross revenue ranging between 5 and 22% depending on the mineral. Although there are some

111. ATKINSON & STIGLITZ, *supra* note 101, at 564; Bradford, *supra* note 4, at 23-24; Fullerton, *supra* note 4, at 435; McCaffery, *supra* note 6, at 1170.

112. McCaffery, *supra* note 6, at 1148, 1179-83.

113. See *id.* at 1148.

114. See *id.* at 1147 & n.6.

115. Bradford, *supra* note 4, at 50.

116. McCaffery, *supra* note 6, at 1147-48.

117. Weiss, *supra* note 6, at 208-09, 227.

tent treatment of investments is that tax-favored but less productive investments are encouraged over less tax-favored but more productive investments. This tendency is exacerbated by borrowing, because borrowing is generally subject to income tax treatment whereas many investments produce returns that are subject at least in part to consumption tax treatment.¹²³ The inconsistency between the borrowing and lending portions of the transaction encourage taxpayers to borrow to invest in such projects.¹²⁴ These leveraged transactions are, in turn, fought by rules, such as those limiting interest deductibility, that greatly complicate the law.¹²⁵

To see how the inconsistent treatment of investments causes harm, consider an economy with a flat 30% income tax. Assume that investment in manufacturing produces a 10% pre-tax return and that manufacturing can expand or contract without changing that return. Under these assumptions, if investment in manufacturing were subject to income tax treatment, then the after-tax return would be 7%. If investment in farming received consumption tax treatment, then the equilibrium return on farming would not be 10% but only 7%. For only when the pre-tax return to farming is 7%, and thus the after-tax return to farming and manufacturing are both 7%, is there no incentive for investors to shift capital between the two sectors.

Although investors have no incentive to shift capital, society as a whole would increase its wealth by shifting investment from farming to manufacturing, because the social return from manufacturing is 10%, whereas the marginal social return from farming is 7%. The initial increase from shifting capital from farming to manufacturing would be 3%, as more investment is redirected that increase would fall. The gain to society from redirecting investment disappears when the returns are equal. This unex-

limitations, the depletion allowances are not cut off once the entire cost is recovered. I.R.C. § 613 (1988 & Supp. V 1993). Thus, for extractive resources that have risen sharply in price, the depletion allowance can exceed the present value of the cost of acquiring those reserves.

123. More favorable treatment than under a consumption tax results from consumption tax treatment and interest deductibility. For example, debt-financed, owner-occupied housing receives more favorable treatment than under a consumption tax. Consumption tax treatment is largely provided by excluding the imputed rental value from income and by reduced rates on appreciation through general capital gain reductions, see *supra* note 121, like-kind exchanges, I.R.C. § 1031 (1988 & Supp. V 1993), the one-time \$125,000 exclusion of capital gains from owner-occupied homes provided taxpayers over 55, I.R.C. § 121 (1988), and the step-up of basis to fair market value on death, I.R.C. § 1014 (1988). Pure consumption tax treatment would require full exclusion of appreciation from the tax base. Since mortgage interest is also deductible, the tax treatment is even more favorable than a consumption tax.

124. Calvin H. Johnson, *Tax Shelter Gain: The Mismatch of Debt and Supply Side Depreciation*, 61 TEX. L. REV. 1013 (1983).

125. Bradford, *supra* note 4, at 41-42.

ploited opportunity to increase social wealth by redirecting investment is the principal cost of the inconsistent tax treatment of investments.

Stated more generally, the current hybrid's inconsistent treatment of investments causes the ratio of the private (after-tax) and social (before-tax) returns to vary across investments. As a result, equilibrium social returns vary across investments, reducing society's return on investment simply by redirecting it.¹²⁶ These costs, which are pure social costs not offset by any social gains, result from shifting investment at the margin from tax-disfavored to tax-favored projects.¹²⁷

Over time, because of interest compounding, the harm from the inconsistent treatment of investment can be large, even if the rate differential seems small. The difference between accumulation at 5% and at 8% is only 3% a year. However, \$1 invested over a period of 20 years at 5% with annual reinvestment grows to only \$2.65 whereas at 8% it reaches \$4.66. Thus, after 20 years, the 3% difference in annual return between 5% and 8% results in a 76% difference in accumulated value. Moreover, this difference continues to grow as the investment horizon recedes. After 50 years, the accumulated value is 4 times greater. At 5%, the investment is worth \$11.47, compared with \$46.90 at 8%.¹²⁸ Thus, as this simple example illustrates, inconsistencies in the current hybrid that produce relatively small differences in hurdle rates across sectors can over time result in large differences in national wealth.

Not only is it theoretically possible for the effects of the inconsistent tax treatment of savings to be large, there is reason to believe that they are important. A study by Mervyn King and Don Fullerton on the taxation of income from capital and economic growth found that the variance in tax rates across investments in the economy, and not the average level of tax rates, is most closely related to low growth rates.¹²⁹ If this is correct, then

126. This point is elegantly made by Bill Klein in his contribution to this issue. See William A. Klein, *Tailor to the Emperor with No Clothes: The Supreme Court's Tax Rules for Deposits and Advance Payments*, 41 UCLA L. REV. 1685 (1994).

127. That is not to say that there could not be economic justifications for the different tax treatment because of externalities. If manufacturing produced negative externalities (e.g., pollution), or farming produced positive externalities (e.g., genetic supply), then a difference might be justifiable. For a discussion of using the tax system to internalize costs and benefits, see MUSGRAVE & MUSGRAVE, *supra* note 20, at 49-50. However, such differences have little or nothing to do with the existing law.

128. See David F. Bradford, *Issues in the Design of Savings and Investment Incentives*, in DEPRECIATION, INFLATION, AND THE TAXATION OF INCOME FROM CAPITAL 13, 25 (Charles R. Hulten ed., 1981).

129. MERVYN A. KING & DON FULLERTON, *THE TAXATION OF INCOME FROM CAPITAL: A COMPARATIVE STUDY OF THE UNITED STATES, THE UNITED KINGDOM, SWEDEN AND WEST GERMANY* 301 (1984).

eliminating the inconsistent treatment of investment brought about by the current hybrid is among the most important possible reforms of the tax system.¹³⁰ For eliminating the inconsistencies would not only increase current wealth, but by placing the economy on a higher growth trajectory it would increase future wealth even more.

On an anecdotal level, the claim that the cost from the inconsistent treatment of investments is large can be bolstered by examining the crisis in real estate following the Tax Reform Act of 1986,¹³¹ which eliminated some of the tax advantages previously enjoyed by real estate, placing it more closely on par with other investments. According to one commentator, the value of existing residential rental structures fell by more than 10% as a result of Tax Reform, which translates into a decline of more than \$100 billion on a stock with an initial value of \$1 trillion.¹³² The loss on commercial structures would be even greater since their stock was valued at \$2.5 trillion.¹³³ The loss in value on rental real estate from tax reform, more than \$200 billion, is an estimate of the social cost of over-building that was previously paid for publicly but was only recognized privately when the tax advantages were reduced. Although these numbers are very rough estimates, and even if they are much larger than the actual declines, they are strongly suggestive of the vast misallocations that taxes can produce.

The inconsistent treatment of investments also influences investors' portfolio choices.¹³⁴ This is easy to see by considering two taxpayers, one in a 20% tax bracket and the other in a 50% tax bracket, in the two-sector economy in which the marginal investor is in the 30% tax bracket. Recall that investments in manufacturing return 10% and are subject to income tax treatment while investments in farming receive consumption tax treatment. Because it is the marginal investor who determines the equilibrium return on investments,¹³⁵ farming will produce a before-tax return of 7%.

130. Gann, *supra* note 15, at 81 (a consensus exists that the tax system should be more neutral in the treatment of investments).

131. Tax Reform Act of 1986, Pub. L. No. 99-514, 100 Stat. 2085 (codified at I.R.C. (1988)).

132. Floyd L. Williams, III, *Passive Activity Losses and Real Estate Professionals: An Analysis of Proposed Legislative Relief*, 8 TAX MGMT. REAL EST. J. 135 (1992), available in Westlaw, JLR Database.

133. *Id.*

134. An intriguing proposal for eliminating this effect with surtaxes on the inframarginal rent has been made by Deborah M. Weiss, *Tax Incentives Without Inequity*, 41 UCLA L. REV. 1949 (1994).

135. See Alan J. Auerbach, *Should Interest Deductions Be Limited?*, in UNEASY COMPROMISE, *supra* note 1, at 195, 199-203; Daniel N. Shavero, *Selective Limitations on Tax Benefits*, 56 U. CHI. L. REV. 1189, 1230 (1989); George K. Yin, *Colloquium on Corporate Integration: Corporate Tax Integration and the Search for the Pragmatic Ideal*, 47 TAX L. REV. 431, 459 n.103 (1992).

Thus, a \$100 investment in farming will produce a return of \$7 a year, which will be exempt from tax, whereas a \$100 investment in manufacturing will produce an annual return of \$10, which will be fully subject to tax. For the 20% bracket taxpayer, the after-tax return from the manufacturing investment is \$8 but the return from the farming investment is still \$7. Thus, the 20% bracket taxpayer will invest in manufacturing. For the 50% bracket taxpayer, the investment in manufacturing will produce an after-tax return of \$5 but the farming investment still returns \$7. Thus, the 50% bracket investor will invest in farming. The hybrid, thus, encourages investments to migrate to clienteles based on tax consequences, with high-bracket taxpayers driven towards tax-favored investments and low-bracket taxpayers driven towards tax-disfavored investments. This tax-driven migration is undesirable for at least three reasons. First, tax considerations might cause investors to end up with less diversified (and therefore riskier) portfolios than they would otherwise desire.¹³⁶ Second, inframarginal investors will earn excess returns. In practice, these excess returns will be concentrated in the hands of the wealthiest individuals.¹³⁷ Third, the investors who gravitate towards an investment for tax reasons might not be the parties that can best evaluate or operate those investments.¹³⁸

The migration of assets caused by taxes and borrowing does more than partition real investment assets between low- and high-bracket investors. Tax considerations tend to drive real assets from the hands of low-bracket investors into the hands of high-bracket investors, leaving low-bracket investors holding only financial assets. This occurs because the tax law permits real assets to be depreciated faster than economic depreciation would allow.¹³⁹ Such economically-accelerated depreciation tends to move the tax treatment of real assets from an income tax towards a consumption tax.¹⁴⁰ Because the tax savings from the preferential treatment of real assets are worth more to high-bracket taxpayers, they will end up holding the real assets because these assets are worth more to them.

A classic example of portfolio distortion is rental real estate, both commercial and residential, which tax considerations push into the hands of high-bracket taxpayers. Rental real estate would seem especially well suited for middle-class investors, including retirees, who can own and man-

136. BRADFORD, *supra* note 8, at 201-02.

137. Weiss, *supra* note 134, at 1958-62.

138. BRADFORD, *supra* note 8, at 203.

139. Even straight-line depreciation over the asset's life is accelerated relative to economic depreciation. CHIRELSTEIN, *supra* note 42, ¶ 6.08(d), at 149.

140. See generally *id.* ¶ 6.08, at 145-49.

age their own properties. However, these investors have to pay a premium to purchase rental real estate because the tax deductions that are bundled with the property are not worth as much to them.¹⁴¹

The harm from the tax system's inconsistent treatment of investments is exacerbated by the use of debt financing.¹⁴² Current law taxes debt on the income method. Thus, assuming that the marginal investor is in the 30% tax bracket, the before-tax interest rate in the hypothetical two-sector economy would be 10%, providing an after-tax yield of 7%. For an investor in the 30% tax bracket, there is no opportunity to increase after-tax returns by using debt. However, for the high-bracket taxpayer, such an opportunity arises with the farming venture. The investor should borrow \$100 and invest it in farming. The borrowing will require an annual interest payment of \$10. However, assuming that the investor has income that can be offset by the interest deduction, the interest payment will generate a tax saving of \$5 for an investor in the 50% tax bracket, reducing the after-tax investment expense to \$5. Since the farming investment returns \$7 tax free, the high-bracket taxpayer earns an arbitrage profit of \$2 on no net investment. Obviously, all high-bracket investors would like to obtain as many farming assets as possible. This will increase the investment in farming, driving down its return still further. The arbitrage possibility disappears when the return on farming falls to 5% and all farming assets are owned by taxpayers in the 50% bracket and are fully leveraged. Thus, the introduction of borrowing increases the range in the equilibrium before-tax return on investments by driving down the after-tax return of the tax-favored investment. Although the before-tax return on manufacturing is 10% both without and with borrowing, the possibility of borrowing reduces the before-tax return on farming from 7% to 5%. Thus, the economic cost of the inconsistent treatment of investment is greater when there is borrowing.¹⁴³

Moreover, the introduction of borrowing furthers the migration of tax-favored assets into the hands of high-bracket investors by raising the cost to low-bracket taxpayers of investing in tax-favored assets. Thus, without borrowing, it would have cost an investor in the 20% bracket a 1% reduc-

141. BRADFORD, *supra* note 8, at 218-19.

142. Auerbach, *supra* note 135, at 202-03.

143. The additional cost is the difference between the return on manufacturing, 10%, and the return on the additional investment in farming, between 5 and 7%, that debt finance makes possible.

tion in return to invest in farming instead of manufacturing, whereas with borrowing the cost is 3%.¹⁴⁴

The inconsistent treatment of real assets and debt is also the source of tax shelters.¹⁴⁵ A tax shelter is a transaction that is motivated by tax considerations and where tax benefits are the overwhelming economic advantage received by the taxpayer from the transaction.¹⁴⁶ In an attempt to prevent high-bracket taxpayers from reducing their income tax liability by investing in tax shelters, complicated rules are drawn to limit the activity.¹⁴⁷ For example, the tax law disallows deductions for investment interest in excess of income,¹⁴⁸ for interest incurred on debt used to purchase tax-exempt bonds,¹⁴⁹ and it contains interest tracing rules to enforce these policies.¹⁵⁰ In 1986, Congress substantially reduced the profit from investing in tax shelters by extending the at-risk rules to real estate¹⁵¹ and by adopting passive activity loss rules that severely limit taxpayers' use of tax shelter losses to offset earned and investment income.¹⁵² The result is a tax law that even professionals find numbingly complex.

The complexity of the existing tax system requires that individuals and businesses incur heavy expenses in complying with the law. It also requires

144. These costs are calculated as follows. In the absence of borrowing, manufacturing returns 10%, leaving an investor in the 20% bracket with 8% after-taxes. Comparing that return to the 7% tax-exempt return from investing in farming implies that the cost of investing in farming is 1%. Thus, the low-bracket investor must be able to squeeze another 1% in annual return out of farming to forego manufacturing for farming. When borrowing is possible, manufacturing still returns 10%, leaving the investor in the 20% bracket with an after-tax return of 8%. However, borrowing reduces the equilibrium return on farming to 5%. Thus, the cost to the low-bracket investor of investing in farming is 3%. As there will be fewer low-bracket investors who can find a farming investment that pays an excess return of 3% as opposed to 1%, the introduction of borrowing will further the migration of assets.

145. BRADFORD, *supra* note 8, at 202.

146. *Id.* The tax benefits arise because the tax shelter reduces current taxable income. Although the shelter later increases taxable income, the shelter still benefits the investor. The benefit occurs because the later increase is less than the current decrease when the shelter generates a current expense and a future capital gain taxed at a preferential rate, or even if the current decrease and subsequent increase are equal, the benefit is the time value of money of receiving the deduction before the inclusion. *Id.*; Johnson, *supra* note 124.

147. There is a debate whether there is anything wrong or unfair with individuals reducing their tax liabilities by investing in tax shelters, because investors pay an implicit tax in the form of receiving a lower rate of return in order to invest in tax sheltered assets. See BRADFORD, *supra* note 8, at 203.

148. I.R.C. § 163(d) (1988 & Supp. V 1993).

149. I.R.C. § 265 (1988 & Supp. V 1993).

150. Temp. Treas. Reg. § 1.163-8T (1993).

151. I.R.C. § 465 (1988 & Supp. V 1993). The impact of this provision on real estate tax shelters is limited because nonrecourse loans from outside lenders are not subject to these rules. CHIRELSTEIN, *supra* note 42, ¶ 13.02, at 268-70.

152. I.R.C. § 469 (1988 & Supp. V 1993).

substantially greater expenditures by the federal government in monitoring taxpayer compliance. Of probably greater cost is the talent and effort of taxpayers and their advisors employed in structuring taxpayers' affairs to take full advantage of the available opportunities to minimize taxes.¹⁵³ Substantial resources are also spent influencing the tax laws.¹⁵⁴

The complexity of the present hybrid has produced frequent criticisms that it is unfair. The principal unfairness caused by the hybrid is the excess returns to special tax clienteles, frequently high-bracket taxpayers.¹⁵⁵ Also, because the expertise required to navigate through the tax law is more readily available to the wealthy, they are better able to take advantage of the tax benefits under the existing hybrid.¹⁵⁶ Finally, complexity combined with the tax benefits that inconsistency makes possible invites the unscrupulous to engage in fraud.¹⁵⁷

Viewed from almost any perspective, the current hybrid is a failure. When measured against the five criteria, the current hybrid comes up short. The current system is not neutral because it treats investments inconsistently, causing social rates of return to differ across investments. That reduces the return on investment, which is arguably an important factor in the nation's low rate of productivity growth.¹⁵⁸ Second, the tax system is far from transparent. Perhaps the best known illustration of the opacity of the current hybrid is that tax reforms in the early 1980s that were intended to reduce the tax rate on equipment went further than intended and so had the effect of subsidizing it.¹⁵⁹ Third, the lack of neutrality is exacerbated by progressivity in the tax schedule, which is the cause of clientele effects.

153. BRADFORD, *supra* note 8, at 174-75.

154. This phenomena has been colorfully illustrated for the Tax Reform Act of 1986. JEFFREY H. BIRNBAUM & ALAN S. MURRAY, *SHOWDOWN AT GUCCI GULCH: LAWMAKERS, LOBBYISTS, AND THE UNLIKELY TRIUMPH OF TAX REFORM* (1987).

155. Weiss, *supra* note 134, at 1958-62.

156. Edward J. McCaffery, *The Holy Grail of Tax Simplification*, 1990 WIS. L. REV. 1267, 1281.

157. All of these concerns were succinctly stated by Professor Bradford:

The observed fact of individuals' reducing their current tax liability by such transactions is, not surprisingly, offensive to the untrained observer. Consequently, complicated rules are drawn to limit the extent to which an individual can participate. It is doubtful that such rules are necessary from the point of view of the substance of the matter as opposed to the appearance. There is a question, however, about whether doctors and dentists (or other high earning individuals) are well placed to evaluate the sorts of investments providing tax shelter, and there is certainly social waste involved in the maldistribution of risk bearing, the talent devoted to the design and marketing of the schemes, and the temptation to fraud in their complexity.

BRADFORD, *supra* note 8, at 203.

158. *Id.* at 221-22.

159. Gann, *supra* note 15, at 100.

On the other hand, the current hybrid satisfies the fiscal policy criterion, since investment can easily be stimulated or restrained by accelerating or decelerating depreciation and by increasing or decreasing the investment tax credit. Finally, giving the status quo the benefit of the doubt, it might be feasible to assess tax liabilities because this is apparently being done without an avalanche of criticism.¹⁶⁰ Thus, the existing hybrid fails to meet at least three of the five criteria, including the critical requirement of neutrality.

V. A BLENDED HYBRID

This and the following two parts each discuss a different hybrid tax system that could serve as the basis for comprehensive reform. In each part, a hybrid is first introduced and its operation described. Each hybrid is then shown to be a hybrid of the realization income tax and either the yield exemption or the cash flow method consumption tax. That discussion is somewhat technical. All of the parts conclude by assessing the hybrid using the five criteria.

A. The Operation of the Hybrid

Professor Bradford was the first commentator to offer a hybrid tax.¹⁶¹ Although more recently a proponent of a cash flow consumption tax,¹⁶² in 1980 he argued against the existing hybrid but in favor of a hybrid tax of some form.¹⁶³ In that article, Professor Bradford also offered a means of implementing a hybrid. Although more an aside than a developed idea, Professor Bradford suggested that a hybrid could be implemented by taxing earnings at full marginal rates, and by taxing the return to savings at reduced marginal rates. I call this hybrid the blended hybrid because savings are taxed at a blended rate that is between the income tax (taxation at

160. There is a lot of criticism of tax administration, but there does not appear to be much criticism of administration that is directly related to the hybrid. There are, however, some parts of the hybrid, such as the interest tracing rules, that are heavily criticized. See, e.g., *id.* at 120-22. On occasion, the current hybrid has required allocating income between capital and effort in a manner similar to the criticism of the yield exemption method. For a discussion of the problems in distinguishing income from capital and effort in the context of repealed I.R.C. § 1348, which set a maximum tax on earned income, see Michael Asimow, *Section 1348: The Death of Mickey Mouse?*, 58 CAL. L. REV. 801, 835-860 (1970).

161. Bradford, *supra* note 4, at 23-28, 38-40.

162. BRADFORD, *supra* note 8, at 7, 312-15.

163. Bradford, *supra* note 4, at 64-67.

full marginal rates) and the yield exemption method (exempt from taxes), and I denote it using a subscript B.

The blended hybrid is similar to a number of recent proposals for reform of the existing hybrid. Professor Weiss has argued in favor of replacing the existing single rate schedule for income with separate schedules for capital and labor income.¹⁶⁴ Professor Weiss's view is carried one step further by Eric Zolt, who considers schedular taxes, differential tax rates on several different kinds of income.¹⁶⁵ Although these authors do not characterize their proposals as hybrid income-consumption taxes, their proposals are similar to the blended hybrid.

Returning to Professor Bradford's characterization of the hybrid, his description is incomplete, in that he did not discuss the depreciation schedule to use with his hybrid. Fortunately, it is easy to supply the missing piece. Because the income tax uses economic depreciation, any hybrid that uses a single depreciation schedule and has the income tax at one pole must use economic depreciation.¹⁶⁶ Accordingly, Professor Bradford's blended hybrid uses economic depreciation and taxes the return from savings at a reduced rate.¹⁶⁷

In form, the blended hybrid resembles the income tax. The difference between the two is that the income tax subjects the return on saving to tax at full marginal rates whereas the blended hybrid subjects that return to tax at reduced rates.¹⁶⁸ Denoting by α the tax rate on earned income, τ , the blended hybrid imposes a tax at the rate $\alpha\tau$ on the return on savings. Thus, looking only at investments (excluding earnings), the blended hybrid is equivalent to an income

164. Weiss, *supra* note 6, at 208-09.

165. ERIC ZOLT, SCHEDULAR TAXES IN A GLOBAL TAX SYSTEM (Working paper, 1993).

166. The depreciation schedule with the blended hybrid is given by:

$$D_B(t) = D_R(t),$$

which is identical to the depreciation schedule with the realization income tax as given *supra* note 74.

167. Compared to the existing hybrid, the blended hybrid decelerates depreciation, which would move the tax system toward the income pole, and reduces the statutory tax on the return from saving, which would move the system toward the consumption pole.

168. The blended hybrid combines the tax treatment of the income tax and the yield exemption method. The yield exemption method can be viewed as an income tax, and therefore using economic depreciation, with a zero percent tax rate. Thus, the blended hybrid combines the two methods' identical capital recovery provisions and their different tax rates.

tax with a tax rate of $\alpha\tau$.¹⁶⁹ Because the income and consumption extremes tax earned income at full marginal rates, the difference being solely in the treatment of savings, the hybrids, like the extremes, can be described in terms of their treatment of savings.

The blended hybrid's hurdle rate for new investments is given by substituting $\alpha\tau$ for τ in equation 1, the hurdle rate with an income tax:

$$h_B = \frac{r}{1-\alpha\tau}. \quad (14)$$

Thus, the corresponding saving incentive ratio is given by substituting $\alpha\tau$ for τ in equation 6, the saving incentive ratio with an income tax:

$$\rho_B = 1-\alpha\tau. \quad (15)$$

Equation 15, which characterizes the blended hybrid, implies that the saving incentive ratio is less than one for positive values of α and that the ratio falls as α increases.¹⁷⁰ Thus, the ratio falls as the income tax component of the hybrid rises.

B. The Nature of the Blended Hybrid

I have asserted that the blended hybrid is a hybrid of the realization income tax and the yield exemption method, with the income tax at one pole and the yield exemption method at the other. Because the difference between the income tax and the yield exemption method is in the treatment of savings, any hybrid that combines the two must combine their treatment of savings. In order to show that the blended hybrid is a hybrid of the realization income tax and the yield exemption method, I first show that the hurdle rate for the blended hybrid is a linear combination of the hurdle rates for the two extremes, where α is the weight on the income portion and $1-\alpha$ is the weight on the yield exemption portion. I also show that the polar cases for the hurdle rate with the blended hybrid are the

169. The tax liability with the blended hybrid is:

$$T_B(t) = \alpha\tau[C(t) - D_B(t)],$$

which is α times the tax liability with the income tax and $1-\alpha$ times the tax liability (identically zero) with the yield exemption method.

170. The wedge between the private and social return with the blended hybrid, W_B , is given by:

$$W_B = \alpha\tau,$$

which is an increasing function of α .

realization income tax when $\alpha=1$ and the yield exemption method when $\alpha=0$. Similar exercises are repeated for the two remaining hybrids.

It can be readily confirmed by observation that the blended hybrid's savings incentive ratio is a linear combination of the corresponding ratios for the income tax and yield exemption method. That is, equation 15 is a linear combination of equations 6 and 7, with the weights α and $1-\alpha$.¹⁷¹ It, thus, follows that the blended hybrid is a linear combination of the income tax and the yield exemption method. Moreover, for $\alpha=0$, the saving incentive ratio is 1, which is equivalent to the ratio for the yield exemption method as given in equation 5.¹⁷² Similarly, when $\alpha=1$, the blended hybrid's saving incentive ratio is $1-\tau$, which is identical to that for a realization income tax, as given in equation 6.¹⁷³ Thus, the blended hybrid combines the income tax and the yield exemption method and it has these taxes at its poles.¹⁷⁴

171. Equation 6, the saving incentive ratio from the income tax, is $\rho_R = 1-\tau$ and equation 7, the saving incentive ratio from the yield exemption method, is $\rho_Y = 1$. Multiplying equation 6 by α and equation 7 by $1-\alpha$, yields $\alpha\rho_R = \alpha(1-\tau)$ and $(1-\alpha)\rho_Y = 1-\alpha$. Adding the last two equations together and rearranging terms yields: $\alpha\rho_R + (1-\alpha)\rho_Y = 1-\alpha\tau$, which equals ρ_B , the saving incentive ratio with the blended hybrid, as given in equation 15.

172. The saving incentive ratio for the blended hybrid is given in equation 15: $\rho_B = 1-\alpha\tau$. When $\alpha=0$, the saving incentive ratio is 1, which equals the saving incentive ratio for the yield exemption method as given in equation 7.

173. The saving incentive ratio for the blended hybrid is given in equation 15: $\rho_B = 1-\alpha\tau$. When $\alpha=1$, the saving incentive ratio is $1-\tau$, which equals the saving incentive ratio for the income tax as given in equation 6.

174. Because the yield exemption method and the cash flow method have the same saving incentive ratio, as do the realization and accretion income tax, showing that the blended hybrid's saving incentive ratio is a linear combination of the realization income tax's ratio and the yield exemption method's ratio does not establish that the hybrid uses the yield exemption as opposed to the cash flow method or the realization as opposed to accretion income tax. That the various hybrids all use the realization income tax, not the accretion tax, is obvious because they all use economic depreciation. That they use a particular method of the consumption tax requires some attention. The difference between the yield exemption method and the cash flow method is that the former does not subject the NPV to tax whereas the latter does. Accordingly, a hybrid of the income tax and the cash flow method would subject the NPV to tax at full marginal rates and the ordinary return to tax at the blended rate whereas a hybrid using the yield exemption method would subject both the NPV and the ordinary return to tax at the blended rate. Thus, to establish that the blended hybrid has the yield exemption method and not the cash flow method at one of its poles it is only necessary to show that NPV of an investment will be taxed at a reduced rate. This is easiest to see when $\alpha=0$, in which case the entire return from an investment, including the NPV, escapes tax, which establishes the claim that the blended hybrid has the yield exemption method not the cash flow method at one of its poles.

C. The Blended Hybrid Satisfies Three of the Five Desirable Criteria for a Hybrid

This section evaluates the blended hybrid using the five criteria that a hybrid should have that were developed in Part I.

1. The Blended Hybrid is Neutral

The first of the five criteria is neutrality. A hybrid is neutral if it partitions investments between acceptable and unacceptable investments according to whether they produce a return above or below the hurdle rate. The easiest way to see that the blended hybrid is neutral is to recognize that the blended hybrid is an income tax on savings at reduced rates and that the income tax is neutral.¹⁷⁵ Thus, the blended hybrid is also neutral.¹⁷⁶

2. Problems in Constructing a Hybrid Using the Yield Exemption Method

This section addresses the next two criteria: tractability and fiscal policy. The economic significance of constructing a hybrid using the yield exemption method is that both the ordinary return and the NPV are subject to tax at the blended rate. Unfortunately, there are daunting implementation problems that come from trying to construct a hybrid that uses the yield exemption method, because the NPV cannot be observed yet it is subject to tax at a reduced rate.

175. See *supra* notes 87-88 and accompanying text.

176. This claim can also be demonstrated in a manner similar to what was done for the tax extremes. With the blended hybrid, the NPV of a one-period investment project is:

$$NPV = -C_0 + \frac{[C_1 - (C_1 - C_0)\alpha\tau]}{1 + \frac{r}{1-\tau}}$$

Substituting for r in terms of h_B , equation 14, and simplifying the resulting expression implies that:

$$NPV \geq 0 \text{ as } C_1 \geq (1+h_B)C_0.$$

Thus, the blended hybrid is neutral because all projects with a rate of return above the hurdle rate are acceptable and all those with a return below that rate are not.

made for the lawyer who owns her books and office equipment, the mechanic who owns her tools, the taxi driver who owns her car, and anyone who pays for the capital she uses in her business.¹⁸² The second shortcoming is related to the first. The hybrid restricts the use of fiscal policy because the same kind of allocation problems arise when the tax treatment is changed for new investment but not for existing investment.

Because of the blended hybrid's shortcomings, choosing between the blended hybrid and the existing hybrid might be difficult. Although the blended hybrid would eliminate the inconsistencies that are the cause of so much inefficiency and unfairness, the blended hybrid would be difficult to implement and enforce. These administrative difficulties might be expected to lead to inefficiency and unfairness as taxpayers redirect investment to take advantage of them. Although my intuition is that the harm from the inconsistencies brought about by current law is so large that the blended hybrid would be a marked improvement, it is difficult to be confident. Others who are more attuned to the administrative details of the tax law might reach a different conclusion. Fortunately, the decision can be avoided, because, in contrast to the blended hybrid, each of the next two hybrids satisfies all five criteria. Therefore, because there are other hybrids that are clearly superior both to the current hybrid and to the blended hybrid, the blended hybrid is not an appropriate model for comprehensive reform of the tax system.

VI. A SIMPLE HYBRID

A very simple means of implementing a hybrid tax is to divide the recovery of investment into two parts one of which is immediately expensed and the other of which is recovered through economic depreciation as required by the realization income tax. The resulting tax is a hybrid with the relative portions measured by the allocations.¹⁸³ This hybrid, which I call the simple hybrid and denote by a subscript S, was first de-

182. Indeed, the problem is not limited to instances where the taxpayer owns her equipment. The same problem arises with capital leases. In fact, it arises on both sides of a lease transaction. Moreover, there is no theoretical reason why the allocations on opposite sides of the lease should be equal, further complicating administration.

183. Such a proposal is not equivalent to an investment tax credit (ITC). An ITC provides for immediate recovery of a portion of the cost of new investment. However, the basis of the asset is not reduced by the ITC. The full basis can be recovered, which permits a double recovery for the amount of ITC. Nonetheless, the cash flow method can still be more favorable than depreciation with ITC. For unless the law provides a large ITC, depreciation or the discount rate is very low, the immediate deduction with the cash flow method will exceed the present value of the deductions with the ITC and depreciation together.

scribed by Arnold Harberger and shortly thereafter by Professor Bradford.¹⁸⁴ It was later briefly criticized by Pamela Gann.¹⁸⁵ These three brief articles, each around a decade old, apparently are the only original discussions of the simple hybrid.¹⁸⁶

A. Operation of the Simple Hybrid

Denote the income tax proportion of the simple hybrid by γ . For an investment of B , the basis that receives economic depreciation is γB . The remainder, $(1-\gamma)B$ is immediately expensed, which produces a tax saving of $(1-\gamma)\tau B$. Thus, after the initial recovery of $(1-\gamma)B$, the depreciation deductions are identical to economic depreciation but they are smaller, only γ as large.¹⁸⁷ Like the blended hybrid, the simple hybrid combines the income tax treatment and the consumption tax treatment of investments in a single tax system. The simple hybrid provides an immediate deduction of the portion $1-\gamma$ of the amount invested and allows economic depreciation to be taken on the portion γ . Thus, the simple hybrid combines the capital recovery provisions of the realization income tax and the cash flow method.¹⁸⁸

The effective reduction in tax on investment with the simple hybrid is through the capital recovery provisions. Economic depreciation subjects

184. Bradford, *supra* note 128, at 26-29; Harberger, *supra* note 88, at 299.

185. Gann, *supra* note 15, at 120-22.

186. In a book directed at the educated lay reader, Professor Bradford discusses the results of his 1981 article. See BRADFORD, *supra* note 8, at 213-20. This is the only other discussion of that hybrid.

187. The hybrid can also be implemented by replacing economic depreciation with a first-year allowance calculated to equal the present value of the anticipated future depreciation deductions. Implementing such a system of economic depreciation was originally proposed by Alan J. Auerbach & Dale W. Jorgenson, *Inflation-Proof Depreciation of Assets*, HARV. BUS. REV., Sept.-Oct. 1980, at 113. The principal advantage of allowing investors in real assets to take their depreciation deductions in the first year is that the tax treatment for depreciable assets is automatically adjusted for inflation. This occurs because their basis is then zero, eliminating the overstatement of income brought about by inflation when depreciation is not indexed for inflation.

188. The depreciation schedule with the simple hybrid can be written as:

$$D_S(t) = \begin{cases} (1-\gamma)B + \gamma D_E(t), & t=0 \\ \gamma D_E(t), & t>0. \end{cases}$$

At time zero, the investor receives both the immediately expensed portion of basis and current economic depreciation because depreciation starts immediately with the income ideal. The corresponding tax liability is:

$$T_S(t) = \tau[C(t) - D_S(t)].$$

the ordinary return to tax. Accelerating depreciation by allowing an immediate full write-off exempts the ordinary return to tax. Thus, the larger the immediate write-off, the larger the portion of the ordinary return exempt from tax and the closer the hybrid comes to the cash flow tax.

The effect of the simple hybrid on the incentive to save is derived by considering a bond issued at par that pays an annual coupon at rate h .¹⁸⁹ Because the simple hybrid subjects the entire coupon to tax, the after-tax coupon equals the before-tax coupon multiplied by one minus the tax rate: $h(1-\tau)$. Under this hybrid, each dollar invested provides an immediate deduction of $1-\gamma$. Thus, the after-tax cost of purchasing the bond is reduced by the immediate deduction at the rate τ on each fraction $1-\gamma$ of a dollar. Thus, the after-tax cost of each dollar of face value is $\$(1-\tau+\gamma\tau)$.¹⁹⁰ Dividing the after-tax coupon rate by the proportional after-tax expenditure and solving for h in terms of τ provides the hurdle rate for investments:¹⁹¹

$$h_s = \frac{\tau(1-\tau+\gamma\tau)}{1-\tau}. \quad (16)$$

The corresponding saving incentive ratio is given by:

$$\rho_s = \frac{1-\tau}{1-\tau+\gamma\tau}. \quad (17)$$

Equation 17 implies that the saving incentive ratio is less than one for positive values of γ and that the ratio falls as γ increases.¹⁹² Thus, the savings incentive ratio falls as the income tax component of the simple hybrid increases.

189. Thus, a \$1000 bond will pay a coupon of \$1000 h . For example, if h is 5%, the coupon would be \$50.

190. For each dollar of investment, there is an immediate deduction of $\$(1-\gamma)$. This deduction is worth $\$(1-\gamma)\tau$. Thus, the after-tax cost of each dollar invested is $\$(1-(1-\gamma)\tau)$, which equals $\$(1-\tau+\gamma\tau)$.

191. The after-tax rate of return is given by dividing the after-tax coupon by the proportional after-tax return:

$$r = \frac{(1-\tau)h_s}{(1-\tau+\gamma\tau)}.$$

Solving for h_s in terms of r , yields the equation in the text.

192. The wedge is given by:

$$w_s = \frac{\gamma\tau}{1-\tau+\gamma\tau},$$

which is an increasing function of γ for positive tax rates below 100%. Thus, the wedge between the private and social return is greater the larger the income tax component of the simple hybrid.

B. The Nature of the Simple Hybrid

Since the simple hybrid combines the income tax and the cash flow method's treatments of savings, it should come as no surprise that the simple hybrid is a hybrid of those two methods in the same combination. This is shown by examining the hybrid's saving incentive ratio. The saving incentive ratio, equation 17, is a linear combination of the ratios for the income tax, equation 6, and the cash flow method, equation 7.¹⁹³ It can also be readily confirmed by observation that the simple hybrid has the realization income tax and the cash flow method at its poles. When $\gamma=1$, the savings incentive ratio, equation 17, is $1-\tau$, which is the savings incentive ratio for an income tax, equation 6.¹⁹⁴ When, $\gamma=0$, the savings incentive ratio, equation 17, is 1, which is the savings incentive ratio for a cash flow method tax, equation 7.¹⁹⁵ Therefore, the simple hybrid is a hybrid of the realization income tax and the cash flow method.¹⁹⁶

193. Equation 17 is a linear combination of equations 6 and 7, where weights are not γ and $1-\gamma$, but a and $1-a$, with

$$a = \frac{\gamma}{1-\tau+\gamma\tau}$$

and

$$1-a = \frac{1-\tau+\gamma\tau-\gamma}{1-\tau+\gamma\tau}.$$

Multiplying equation 6 by a and equation 7 by $1-a$ yields:

$$a\rho_R = \frac{\gamma(1-\tau)}{1-\tau+\gamma\tau}$$

and

$$(1-a)\rho_C = \frac{1-\tau+\gamma\tau-\gamma}{1-\tau+\gamma\tau}.$$

Adding the last two equations together yields:

$$\rho_s = a\rho_R + (1-a)\rho_C = \frac{1-\tau}{1-\tau+\gamma\tau},$$

which establishes the claim that the saving incentive ratio with the simple hybrid is a linear combination of the saving incentive ratios with the realization income tax and the cash flow method.

194. When $\gamma=1$, equation 17 becomes $\rho_s = 1-\tau$ (income pole).

195. When $\gamma=0$, equation 17 becomes $\rho_s = 1$ (consumption pole).

196. To establish that the simple hybrid combines the realization income tax with the cash flow method and not the yield exemption method it is only necessary to show that the NPV of an investment is taxed at the full rate. This is easiest to see for the polar case when $\gamma=0$. When $\gamma=0$, the simple hybrid provides the taxpayer with an immediate write off of the full cost of

C. The Simple Hybrid Satisfies All Five Criteria for a Desirable Hybrid

This section evaluates the simple hybrid using the five criteria for a desirable hybrid described in Part I.

1. The Simple Hybrid is Neutral

The simple hybrid is neutral because it partitions all candidate investment projects between acceptable and unacceptable depending upon whether their before-tax return exceeds or is exceeded by the hurdle rate. The NPV of an investment in an economy in which the simple hybrid is in force is given by:

$$NPV = -C_0 + C_0\gamma\tau + \frac{[C_1 - C_1(1-\gamma)\tau - (C_1 - C_0)\gamma\tau]}{(1+r)} \quad (18)$$

Substituting for τ in terms of h_s using equation 16, and simplifying the resulting expression, equation 18 implies that:

$$NPV \geq 0 \text{ as } C_1 \geq C_0(1+h_s). \quad (19)$$

Equation 19 implies that the simple hybrid would divide candidate projects according to whether their rate of return exceeds or is exceeded by the hurdle rate. Thus, equation 19 implies that the simple hybrid is neutral as defined in this Article.¹⁹⁷

2. Advantages from Using the Cash Flow Method in a Hybrid

The simple hybrid would reduce the tax rate on investments without the inefficiency and unfairness that result from the hodgepodge of provisions that were enacted to encourage investment. As previously noted, the problem with trying to reduce the tax rate directly, as in the blended hybrid, is that it creates a difficult apportionment problem. The simple hybrid overcomes this problem by subjecting only the ordinary return to tax at the blended rate, as opposed to both the ordinary return and the NPV. Like the NPV, the ordinary return can be difficult to observe. However,

purchase. Since such a write off exempts the ordinary return from tax but taxes the NPV at full marginal rates, the simple hybrid combines the cash flow method not the yield exemption method with the realization income tax.

197. This result has previously been established by Professor Harberger. Harberger, *supra* note 88, at 307-09.

Professor Warren's observation of the substantial equivalence between the cash flow and yield exemption methods of implementing a consumption tax,¹⁹⁸ suggests a route around this problem. Because immediately expensing an item is equivalent to exempting its ordinary return from tax,¹⁹⁹ it follows that immediately expensing a portion of an investment is equivalent to exempting a portion of the ordinary return from tax. This in turn is equivalent to reducing the tax on the ordinary return of the investment. Thus, the simple hybrid provides an administratively feasible means of reducing the effective tax rate on savings, which makes it possible for it to satisfy both the tractability and fiscal policy criteria.

The simple hybrid exempts the return of capital from the second level of tax, subjects the normal return on investment to the second level of tax at a blended tax rate, and imposes the second level of tax on the net present value of the investment at full marginal rates. The simple hybrid thus differs from the blended hybrid in that the simple hybrid subjects the investment's NPV to tax at the full rate instead of at the blended rate. The fact that only the ordinary return on the investment is subject to tax at the blended rate with the simple hybrid allows the simple hybrid to satisfy the administrability and fiscal policy criteria, because it is unnecessary to decide whether the NPV of the investment is greater and the earnings from effort are less, or vice versa.

The greater administrability of the simple hybrid can be seen by returning to the example of Betty, who started her business with a \$300,000 capital investment. Betty worked full time in the business and earned \$100,000 each year. Using the blended hybrid, Betty would be required to allocate her earnings between effort, taxed at full marginal rates, and return to capital, taxed at a lesser blended rate. Given the lower tax rate on the return to capital, Betty had an incentive to allocate as much income to capital as possible. Conversely, the government had the opposite incentive if it wanted to maximize revenue collection. The result was an administrative nightmare. The beauty of the simple hybrid is that by reducing the tax rate on the ordinary return only, the allocation problem is eliminated. Since the returns to effort are taxed at the same rate as the excess return to capital, it does not matter whether more (or less) can be attributed to effort and less (or more) to capital. Since the ordinary return is fixed, any change in the return to effort is exactly offset by an opposite change in the NPV of an investment. Thus, because effort and NPV are

198. See *supra* notes 57-63 and accompanying text.

199. See *supra* notes 60-63 and accompanying text.

both subject to tax at full rates, the tax liability is the same regardless of how the return is split between effort and capital. Accordingly, Betty's annual tax liability is easily calculated with the simple hybrid.

With an income tax, Betty would have taxable income of \$81,176 in year 1 and \$79,294 in year 2.²⁰⁰ With a cash flow consumption tax, Betty would have a \$300,000 deduction in year 1 to offset her \$100,000 income. Thus, Betty would show a \$200,000 loss for tax purposes in year 1 and she would have \$100,000 income thereafter.²⁰¹ With a simple hybrid that is 70% income tax and 30% cash flow method ($\gamma=.7$), Betty's first year deduction would be \$103,117, producing a loss of \$3117. Given her 30% tax rate, Betty would receive a refund of \$935. In the second year, Betty would have a deduction of \$14,494,²⁰² producing \$85,506 income and a tax liability of \$25,652. Thus, unlike with the blended hybrid, there is no complicated allocation problem with the simple hybrid, and so the simple hybrid is tractable.

The simple hybrid also satisfies the fiscal policy criterion. Assume that in year 3, the government decides to spur investment by reducing the income tax portion of the hybrid to 40% and increasing the cash flow method portion to 60% for all investments made in year 3 or thereafter, leaving the tax treatments of earlier investments unchanged. At the beginning of year 3, Betty invests an additional \$100,000 in her business and in year 3, she earns \$180,000. Assuming that the new investment is in the same type of equipment as the earlier investment, the depreciation deductions would be one-third as large, because she is investing one-third as much. As I illustrate next, the additional earnings do not have to be allocated between the old and new investment; which is accomplished automatically with the simple hybrid. This contrasts with the result using the blended hybrid, which required that such an allocation be made but gave Betty and the government opposing incentives in making that it.

Betty's year 3 gross income is \$180,000. On her original investment, she receives a deduction of \$15,944, which reflects the 70% income portion

200. Betty's income is the difference between her earnings of \$100,000 and her depreciation allowance of \$18,824 in year 1 and \$20,706 in year 2.

201. A simple hybrid that has an income portion of 70% and a consumption portion of 30% provides for an immediate deduction of 30% of any amount invested and for economic depreciation of the remaining 70%. Thus, Betty's \$300,000 investment produces an immediate write-off of \$90,000 and a first year depreciation allowance of \$13,117 ($=.7 \times \$18,824$), which results in a total deduction of \$103,117 and a net loss of \$3117.

202. In the second year, Betty receives a depreciation deduction of 70% of the amount that she would have received with a pure income tax. Thus, her deduction is \$14,494 ($=.7 \times \$20,706$).

for investments made prior to year 3. Because current investments are subject to a tax that contains a 60% consumption portion, Betty also receives a deduction of \$60,000, 60% of her \$100,000 current investment. Betty also gets to deduct \$2510, which reflects the 40% income portion for current investments.²⁰³ Thus, Betty's taxable income for year 3 is \$101,546, the difference between her \$180,000 gross income and her \$78,454 of deductions, and she will pay \$30,464 in tax.²⁰⁴ In year 4, Betty again earns \$180,000. Her deduction from her initial investment is \$17,538 and her deduction from her more recent investment is \$2761.²⁰⁵ Betty's taxable income is then \$159,701 and her tax liability is \$47,910. Thus, the simple hybrid meets the fiscal policy criterion.

3. The Simple Hybrid is Transparent

The simple hybrid satisfies the fourth criterion for a desirable hybrid, transparency. The discussion of that criteria with respect to the blended hybrid applies here with equivalent force. The simple hybrid is transparent because it would not be necessary to complicate it with the elaborate tax rules that are written to limit taxpayers' ability to exploit inconsistencies in the current hybrid.

4. Progressivity

Much of the discussion of progressivity in the blended hybrid applies here as well. The principal difference is that the variability in taxable income created by the tax system is greater with the simple hybrid than with the blended hybrid. The reason for this is that the cash flow portion of the simple hybrid is immediately deductible.²⁰⁶ Accordingly, it would

203. Although this is calendar year 3, it is year 1 for the new investment. Thus, the income tax portion of the deduction for the new investment is one-third of 40% of the depreciation deduction in the depreciation schedule for year 1 and not of the amount for year 3. The amount in the schedule for year 1, \$18,824, is multiplied by 40% because the hybrid has an income portion of 40%, and then divided by 3 because the new investment is one-third the size of the original investment and the depreciation schedule was constructed for the larger \$300,000 investment.

204. The calculations are as follows. Taxable net income is: $\$180,000 - (\$15,944 + \$60,000 + \$2510) = \$101,546$. Tax due is: $.3 \times \$101,546 = \$30,464$.

205. The deductions are calculated as follows. Seventy percent of \$25,054 is \$17,538 and 40% of \$20,706 divided by 3 is \$2761.

206. Of course, the tax induced variation with the simple hybrid is still smaller than it would be with the cash flow method because the income portion of the hybrid smooths out taxable income.

be crucial to use some form of cumulative averaging with the simple hybrid to ensure that implementation with a progressive tax regime would not compromise neutrality.²⁰⁷ The failure to do so would create greater inconsistencies here than with the income tax because of the large first year write-offs.

D. Summary: The Simple Hybrid Satisfies the Five Criteria for a Desirable Hybrid

As described above, the simple hybrid is neutral, transparent and tractable. The previous discussion has also demonstrated that the government has the flexibility of using fiscal policy by changing the income tax-cash flow method mix of the hybrid. Moreover, neutrality is not lost when the hybrid uses a progressive tax schedule. The simple hybrid, thus, meets all five criteria for a desirable hybrid. Therefore, it is an appropriate model for reform.

VII. COCA: THE REAL THING?

Unlike the blended hybrid and the simple hybrid, this last tax system has neither previously been recognized as a hybrid nor has it been proposed as a means of comprehensive tax reform. Instead, it has been offered as a reform of the corporate income tax, especially the inconsistent treatment of corporate debt and equity.

Commentators have been highly critical of the corporate interest deduction, which plays an important role in the large advantage that exists from issuing debt instead of equity.²⁰⁸ The favorable treatment of debt biases corporate financing decisions and wastes real resources.²⁰⁹ That

207. See *supra* note 100 and accompanying text. Thus, Professor Gann's criticism that the simple hybrid cannot work with a progressive tax regime without compromising neutrality is overstated. Gann, *supra* note 15, at 119.

208. See Harold Bierman, Jr., *Debt, Stock, and Junk Bonds*, 41 TAX NOTES 1237 (1988); Peter C. Canellos, *The Over-Leveraged Acquisition*, 39 TAX LAW. 91, 115 (1985); Michael J. Graetz, *The Tax Aspects of Leveraged Buyouts and Other Corporate Financial Restructuring Transactions*, 42 TAX NOTES 721, 721 (1989); Victor Thuronyi, *The Taxation of Corporate Income—A Proposal for Reform*, 2 AM. J. TAX POL'Y 109, 115 (1983); Alvin C. Warren, Jr., *Recent Corporate Restructuring and the Corporate Tax System*, 42 TAX NOTES 715, 717 (1989).

209. The favorable tax treatment of corporate debt over equity encourages corporations to issue debt and avoid equity, biasing corporate financing decisions. William D. Andrews, *Tax Neutrality Between Equity and Capital Debt*, 30 WAYNE L. REV. 1057, 1058-64 (1984). In choosing how much debt to issue, corporations balance the tax saving from additional debt against the increased bankruptcy costs. Because the tax savings are a transfer payment from the treasury to investors whereas the bankruptcy costs are real resource costs, the favorable treatment of debt

has led a number of commentators to propose equalizing the tax treatments of corporate debt and equity.²¹⁰ One such means of doing so is to provide a deduction for equity that is similar to the interest deduction.²¹¹ Although such a proposal is usually offered to improve the corporate income tax,²¹² under certain circumstances it defines a hybrid tax.²¹³ Moreover, this proposal can easily be extended beyond corporate taxes to include personal taxes, in which case it could replace the existing hybrid as the major comprehensive tax system.

A. The Operation of COCA

Edward Kleinbard has proposed scrapping the existing corporate income tax system and replacing it with what he calls a statutory Cost of Capital Allowance (COCA) system.²¹⁴ Under his proposed corporate tax system, a corporation would be provided with an annual deduction in an amount that is equal to the product of its Invested Capital and a statutory COCA. A corporation, however, would not be able to deduct its actual interest expense.²¹⁵ Thus, COCA would provide a corporation with an annual deduction for all capital employed by that corporation, regardless of whether the capital is debt or equity.

wastes society's resources. See Roger H. Gordon & Burton G. Malkiel, *Corporate Finance, in HOW TAXES AFFECT ECONOMIC BEHAVIOR* 131 (Henry J. Aaron & Joseph Pechman eds., 1981). Moreover, because debt is tax-advantaged, investment in projects that can support a lot of debt is encouraged at the expense of projects that cannot support a lot of debt. Michael S. Knoll, *Taxing Prometheus: How the Corporate Interest Deduction Discourages Innovation and Risk Taking*, 38 VILL. L. REV. 1461 (1993).

210. Bierman, *supra* note 208, at 1238; Graetz, *supra* note 208, at 724; Thuronyi, *supra* note 208, at 136; Warren, *supra* note 208, at 717-20.

211. Graetz, *supra* note 208, at 724; Warren, *supra* note 208, at 719.

212. See Graetz, *supra* note 208, at 723-24; Warren, *supra* note 208.

213. See *infra* notes 221-223 and accompanying text.

214. Edward D. Kleinbard, *Beyond Good and Evil Debt (And Debt Hedges): A Cost Of Capital Allowance System*, 67 TAXES 943, 946-47 (1989); Edward D. Kleinbard, *Equity Derivative Products: Financial Innovation's Newest Challenge to the Tax System*, 69 TEX. L. REV. 1319, 1363-68 (1991) [hereinafter Kleinbard, *Equity Derivative Products*].

215. In addition, the corporation would not recognize income, expense, gain, or loss on the cash flows generated by any hedging transaction, such as options, futures, and swaps. Mr. Kleinbard's proposal was motivated by a desire to deal with the complex tax consequences caused by an explosion of new financial instruments that corporations have readily embraced. Kleinbard, *Equity Derivative Products*, *supra* note 214, at 1320-22. For discussions why corporations hedge, see Henry T.C. Hu, *Misunderstood Derivatives: The Causes of Informational Failure and the Promise of Regulatory Incrementalism*, 102 YALE L.J. 1457 (1993); Clifford W. Smith, Jr. et al., *Financial Engineering: Why Hedge?*, in *THE HANDBOOK OF FINANCIAL ENGINEERING* 126 (Clifford W. Smith, Jr. & Charles W. Smithson eds., 1990).

The size of a corporation's COCA deduction would depend on two variables. The first, the statutorily determined COCA, would approximate a fixed fraction of the cost of capital. Mr. Kleinbard proposes using the current yield on Treasury obligations as a proxy for the cost of capital.²¹⁶ Mr. Kleinbard offers COCA as a revenue neutral replacement for the corporate interest deduction. Consequently, because interest payments are currently deductible whereas dividend payments and retained earnings are not, Mr. Kleinbard's statutory COCA would be less than the yield on Treasury obligations. The ratio of the statutory COCA and the yield on Treasury obligations is the COCA fraction, which would be less than one.²¹⁷

The second variable, Invested Capital, would include the issuer's outstanding debt and equity. Mr. Kleinbard takes a balance sheet approach to measuring Invested Capital. Since a corporation's outstanding capital (the right side of its balance sheet) must equal its assets (the left side of the balance sheet), he proposes using the aggregate adjusted tax bases of the corporation's assets as a measure of its Invested Capital. With one variable determined by statute and current macroeconomic conditions and the second by accounting convention, a corporation could easily and accurately calculate its annual federal income tax liability.

Although COCA has been proposed as a reform of the corporate tax system only, COCA could serve as the basis for comprehensive tax reform. This would work by allowing individuals a COCA deduction based on the aggregate adjusted bases of their investments. Thus, for example, an individual who purchases equity securities would receive a COCA deduction each period that is the product of the price paid for the securities and the statutory COCA. Similarly, an individual who purchases a machine for business use would receive a deduction that is the product of the machine's adjusted basis and the statutory COCA. Although the first investment would produce no depreciation whereas the second investment would produce economic depreciation, in both instances the COCA deduction is in

216. Mr. Kleinbard's justification for requiring all corporations to use the same statutory COCA rate, which is a fraction of the interest rate on Treasury securities, is an observation by David Hariton that every borrower pays the same interest rate for the use of money, with differences in borrowing cost reflecting different levels of risk. David P. Hariton, *The Taxation of Complex Financial Instruments*, 43 TAX L. REV. 731 (1988).

217. The COCA fraction is the parameter that, when varied, changes the character of the hybrid between the income and consumption poles.

place of allowing the investor to accelerate the recovery of the original investment through a more rapid depreciation schedule.²¹⁸

COCA, which is similar to several proposals designed to eliminate the differential treatment of debt and equity by providing a deduction for equity,²¹⁹ goes far in eliminating the harm caused by the preferential treatment of corporate debt over corporate equity.²²⁰ However, what is most interesting about COCA, and which to the best of my knowledge has not previously been recognized, is that it defines a hybrid tax that ranges from an income tax to a consumption tax. Thus, COCA is not an income tax as Mr. Kleinbard suggests but a hybrid that by varying one parameter, the

218. There is one major difference in the treatment of individuals and corporations with COCA. The difference occurs in the treatment of interest. Unlike corporations, which would receive no interest deduction under COCA, individuals should treat loan transactions like any other transaction. Thus, individuals who make loans would include the interest they receive but would receive a COCA deduction that is the product of the statutory rate and the loan principal. To maintain neutrality, that treatment must be matched on the borrowing side by providing borrowers a deduction that is the product of the statutory rate and the loan principal. The above treatment is equivalent to denying a deduction for and excluding from income the portion $1-\lambda$ of the interest on the loan. When the tax treatment of investments is consistent and matches the tax treatment of debt, then there are no inconsistencies in the tax system, and therefore no possibility of using debt to exacerbate inconsistencies, which is the source of so much harm with the existing hybrid. See *supra* notes 142-152 and accompanying text. Thus, when debt is subject to the same hybrid tax treatment as other investments, neutrality is preserved when debt is introduced. Accordingly, an integral aspect of all of the hybrids described in this Article would be to subject debt to the same tax treatment as other investments.

219. Mr. Kleinbard's proposal is similar to the one put forth in INSTITUTE FOR FISCAL STUDIES, *EQUITY FOR COMPANIES: A CORPORATION TAX FOR THE 1990's* (IFS Capital Taxes Group Commentary No. 26, 1991). It is also essentially equivalent to a proposal made by James Poterba that a percentage of all capital, defined as the book value of debt and equity, be deductible. James M. Poterba, *The Cost of Capital Consequences of Curbing Corporate Borrowing*, reprinted in *The Tax Policy Aspects of Mergers and Acquisitions: Hearings Before the House Committee on Ways and Means*, 101st Cong., 1st Sess. 140 (1989). Professor Poterba's testimony is based on a joint study. HATSOPOULOS ET AL., *supra* note 18. Mr. Kleinbard's proposal is also consistent with Rebecca S. Rudnick's conclusion that corporate issuers should be permitted a deduction for the interest component of equity as well as the interest on debt. Rebecca S. Rudnick, *Who Should Pay the Corporate Tax in a Flat Tax World?*, 39 CASE W. RES. L. REV. 965, 1268 (1988-89); see also Kleinbard, *Equity Derivative Products*, *supra* note 214, at 1365 n.135. It also resembles a suggestion made by Professor Bradford. See BRADFORD, *supra* note 8, at 238.

220. The welfare loss from increased bankruptcies due to encouraging debt over equity was estimated to be \$3.2 billion in 1975. Gordon & Malkiel, *supra* note 209, at 172. That estimate amounts to about .24% of consumption and about .2% of gross national product. Jane G. Gravelle, *Corporate Tax Integration: Issues and Options*, CRS Rep. for Congress 10 (June 14, 1991). Moreover, because the costs of financial distress substantially exceed those of bankruptcy, that estimate is probably too low. See ROSS ET AL., *supra* note 25, at 454-61. An additional cost to society of the differential tax treatment is the efforts of sophisticated and clever tax attorneys and investment bankers that go into designing new financial instruments in order to take advantage of that differential. BRADFORD, *supra* note 8, at 174-75. Mr. Kleinbard, who is one of the leading tax attorneys in this area, should be commended for making a proposal that would sacrifice a portion of his own practice, because that practice assists some socially wasteful activity.

statutory COCA, can become an income tax, a cash flow tax, or a hybrid between the two. The reason that aspect of COCA's nature has been overlooked is because, unlike the previous two hybrids, COCA does not reduce the tax burden on investment by combining the consumption pole's capital recovery provisions and tax rate with the income pole's.

B. The Nature of COCA

COCA is a hybrid with the income tax at one pole and the cash flow tax at the other. It is easy to see that COCA with a fraction of zero is identical to an income tax. The taxpayer is taxed on the basis of her income with no relief provided by COCA. However, with a fraction of one, COCA does not resemble a cash flow tax. The taxpayer is not taxed on the basis of her cash flow. The effect, however, is the same because COCA with a fraction of one is equivalent to the government paying market interest on the taxpayer's deferred deductions. Together, the effect of deferring a \$1 depreciation deduction and paying market interest on the deferred deduction is equivalent in present value to an immediate deduction of \$1, regardless of when the depreciation deduction is taken. Under such a COCA, items that are depreciated generate full deductions, which is what occurs with a cash flow tax. Similarly, items that are currently deducted (e.g., most wages, training expenses, and energy and material costs) would remain deductible. Thus, both would generate full deductions as with a cash flow tax. Since a cash flow tax differs from an income tax in that with a cash flow tax, capital expenditures produce an immediate full deduction, the present value of any deduction for an expenditure made with such a COCA equals what it would be with a cash flow tax. Thus, even though the timing of the depreciation deductions under COCA resembles that under an income tax, COCA is economically equivalent to a cash flow tax.

The immediately preceding discussion provided the intuition for the claim that COCA is a hybrid of the cash flow method and the realization income tax. Following the discussion of the two previous hybrids, that intuition is now generalized in order to establish that COCA is a hybrid of the cash flow method and the income tax, with those two taxes at the poles.

COCA provides a deduction on the undepreciated portion of every asset at a statutorily-set capital cost. Denoting the statutorily-set capital

cost by i , the COCA at any date t , written $\text{COCA}(t)$, is the product of i and the asset's basis at that date, denoted $B(t)$,²²¹ which is given by:

$$\text{COCA}(t) = iB(t). \quad (20)$$

Since the subject of this Article is comprehensive tax reform, not merely reform of the existing corporate tax, the assumption that a COCA-like system is comprehensively implemented is used to derive the hurdle rate for investments in the economy. Consider a riskless coupon bond issued at par that pays an annual coupon at rate h_K . Let i be the statutory rate for the COCA and denote COCA by a subscript K . Since the coupon is taxable and the COCA generates a deduction, the after-tax return on the bond is given by:

$$r = h_K(1-\tau) + i\tau. \quad (21)$$

Since i and h_K are both constants, we can write i as a function of h_K : $i = (1-\lambda)h_K$. Thus, $1-\lambda$ is COCA as a proportion of the riskless interest rate; $1-\lambda$ is also referred to as the COCA fraction. The choice of λ is not accidental; λ represents the income tax portion of the hybrid.²²² Thus, solving for h_K in terms of r yields:²²³

$$h_K = \frac{r}{1-\lambda\tau}. \quad (22)$$

221. The asset's basis is the difference between the price paid and the accumulated depreciation. COCA uses economic depreciation.

222. As the fraction applied to the cost of capital moves from one to zero, the COCA approximates the income tax, albeit one without a corporate interest deduction. For intermediate values of the fraction, COCA is a hybrid of income and consumption taxes. It is closer to a consumption tax, the closer the fraction is to one.

223. The derivation of equation 22 begins by substituting $(1-\lambda)h_K$ for i into equation 21:

$$r = h_K(1-\tau) + h_K(1-\lambda)\tau.$$

Gathering terms of h_K , the previous equation can be rewritten as:

$$r = h_K - h_K\lambda\tau = (1-\lambda\tau)h_K.$$

Thus, solving for h_K in terms of r yields equation 22.

The corresponding saving incentive ratio is:

$$\rho_K = \frac{r}{h_K} = 1 - \lambda\tau. \quad (23)$$

It is clear from observation that equation 23 is a linear combination of the saving incentive ratios for the income tax and the consumption tax, equations 6 and 7, with the weights $1-\lambda$ and λ .²²⁴ It is also clear that the polar cases correspond to the income tax and the consumption tax.²²⁵ Therefore, COCA is a hybrid of the realization income tax and the cash flow method.²²⁶

C. COCA Satisfies the Five Criteria for a Desirable Hybrid

This section evaluates COCA as a comprehensive tax using the five criteria for a desirable hybrid.

1. COCA is Neutral

Like the other two hybrids, COCA is neutral because it partitions all projects between acceptable and unacceptable depending upon whether a project's rate of return exceeds or is exceeded by the hurdle rate. The NPV of a one-period investment in an economy in which COCA is in force is given by:

$$NPV = -C_0 + \frac{[(1-\tau)C_1 + C_0(1+r)\tau]}{1+r}. \quad (24)$$

224. The saving incentive ratio for the realization income tax, equation 6, is $\rho_K = 1-\tau$ and the ratio for the cash flow consumption tax, equation 7, is $\rho_C=1$. Equation 23, the saving incentive ratio for COCA, $\rho_K = 1-\lambda\tau$, is claimed to be a linear combination of equations 6 and 7, where λ is the weight on equation 6 and $1-\lambda$ is the weight on equation 7. If true, this implies that $\rho_K = \lambda(1-\tau) + (1-\lambda)$. Rearranging terms yields $\rho_K = 1-\lambda\tau$, equation 23, the saving incentive ratio for COCA, which establishes the relationship.

225. When $\lambda=0$, the saving incentive ratio for COCA, equation 23, becomes $\rho_K=1$, which equals the ratio for the consumption tax, equation 19. When $\lambda=1$, the saving incentive ratio becomes $\rho_K = 1-\tau$, which equals the ratio for the income tax, equation 18.

226. To establish that COCA combines the realization income tax with the cash flow method and not with the yield exemption method it is only necessary to show that the NPV of an investment is taxed at the full rate. This is easiest to see for the polar case when $\lambda=0$. When $\lambda=0$, the COCA deduction provides the taxpayer with interest at the market rate on deferred depreciation, which is economically equivalent to an immediate write off of the full cost of purchase. Since such a write off exempts the ordinary return from the tax but taxes the NPV at full marginal rates, COCA combines the cash flow method not the yield exemption method with the realization income tax.

Substituting for r in terms of h_K using equation 22, equation 24 implies that:

$$NPV \geq 0 \text{ as } C_1 \geq C_0(1+h_K). \quad (25)$$

Equation 25 implies that COCA is neutral because it will lead investors to accept all projects with a rate of return in excess of the hurdle rate and to reject all projects with a rate of return below that rate.

2. COCA Yields the Advantages from Using the Cash Flow Method in the Hybrid

That COCA satisfies the tractability and fiscal policy criteria can be illustrated by returning to the example of Betty. Using the same numbers as were used to illustrate the simple hybrid, a \$300,000 investment, \$100,000 annual income, equipment that has a 10-year useful life, a risk-free interest rate of 10%, and a hybrid that has an income tax component of 70% ($\lambda=.7$), Betty will receive a COCA deduction of \$9,000 in the first year. The deduction is the product of the adjusted bases of the equipment at the start of the year, \$300,000; the interest rate, 10%; and the cash flow method proportion of the tax, 30%.²²⁷ In addition to the COCA deduction, Betty will receive an \$18,824 deduction for the first year's depreciation of the equipment. Thus, Betty will have taxable income in the first year of \$72,176 and a tax liability of \$21,653. At the start of the second year, the equipment will have a basis of \$281,176. The COCA deduction will be 3% of that amount, \$8435. Betty will also receive the second year depreciation allowance of \$20,706. Thus, Betty will have taxable income that year of \$70,859 and will pay \$21,258 in taxes. Thus, COCA is tractable because Betty's tax liability can easily be calculated.

The example further assumed that the government reduces the income tax portion of the hybrid from 70% to 40% for all investments made in year 3 or thereafter and that Betty invests an additional \$100,000 that year and sees her annual income increase to \$180,000. The adjusted basis of the original equipment at the beginning of year 3 is \$260,470, and it generates

227. The COCA is given by:

$$COCA(t) = B(t) \times r \times \lambda.$$

Substituting, this becomes:

$$\$300,000 \times .1 \times .3 = \$9000.$$

a COCA deduction of \$7814. The original equipment also generates a depreciation deduction of \$22,777. The new equipment has a basis of \$100,000, its cost, at the beginning of the year. The COCA deduction for the new equipment is the product of the adjusted basis, the risk-free interest rate, 10%, and the cash flow portion of the tax, 60%. Thus, the COCA deduction is 6% of the new equipment's adjusted basis, or \$6000 in the first year. The new equipment also generates a depreciation deduction that year of \$6275. Accordingly, Betty's taxable income in year 3 is \$137,134 and she pays \$41,140.

Therefore, COCA allows the taxing authorities to distinguish new investments from old investments and subject the two groups to different tax treatments. By changing the COCA fraction, the authorities can directly increase or decrease the incentive to undertake new investments without directly changing the benefits from earlier investments.²²⁸ This will permit government authorities to use fiscal policy to influence the economy.

3. COCA is Transparent

Like the blended hybrid and the simple hybrid, COCA satisfies the transparency criterion for a desirable hybrid. COCA would replace accelerated depreciation and it would eliminate the need for many of the complex rules that the current hybrid contains to limit the tax incentives it provides. Although the deduction might seem unfamiliar at first, it is quite simple. The implementation of COCA would not require difficult allocations nor would it require any significant increase in record keeping. The latter is because the COCA deduction is a given multiple of the book value of eligible assets and the book value is already needed to calculate depreciation and any gain or loss on sale.

4. Progressivity

As with all of the tax poles and hybrids discussed in this Article, implementation of a progressive tax regime without compromising neutral-

228. I use the term directly because encouraging or discouraging investment will effect the returns from long-term investments that had been previously made. This is easiest to see when the new capital is a perfect substitute for the old capital, and when the return to capital is a decreasing function of the capital stock. Under these assumptions, increasing the statutory COCA would reduce the effective tax rate on new capital encouraging more investment, thereby driving down the return on all capital, including previously invested capital.

ity requires a cumulative averaging scheme. Even so, one characteristic of COCA is that it tends to smooth out taxable income relative to an income tax. The reason for this is that economic depreciation increases over time whereas the COCA deduction decreases over time as the adjusted basis falls. Accordingly, because COCA and the depreciation deduction move in opposite directions, the inconsistencies brought about from not adopting cumulative averaging would be even less with COCA than with the income tax.

D. Summary: COCA Satisfies the Five Criteria for a Desirable Hybrid

Like the simple hybrid, COCA satisfies the five criteria for an acceptable hybrid. First, COCA is neutral. Second and third, COCA is tractable and it satisfies the fiscal policy criterion. Fourth, COCA is transparent. Fifth, neutrality can be maintained in the presence of a progressive tax regime. Therefore, COCA satisfies the five criteria for a desirable hybrid and is an appropriate candidate for reform.

CONCLUSION

Several decades ago, the federal income tax more closely resembled the income tax pole than it does today. In the intervening years, numerous provisions have been enacted in order to encourage various investments. These provisions have been limited by other provisions designed to prevent taxpayers from exploiting these provisions. The resulting complicated and contradictory quilt of provisions is the current hybrid that has been so roundly criticized because of the negative economic effects that flow from its inconsistent treatment of investments. Yet a consensus has not emerged in favor of either pole and recently several strong arguments have been made in favor of a hybrid tax of some form. If a hybrid is both inevitable and desirable and if the existing hybrid is unacceptable, the question that arises is what should the comprehensive tax system look like.

By addressing that question, this Article has helped prepare the way for comprehensive tax reform. This Article describes and analyzes in broad terms three possible hybrid tax systems that tax investment consistently. Because they are all neutral, the adoption of any one of the hybrids would eliminate the wealth-reducing and growth-retarding inconsistencies that plague the current system.

The blended hybrid, which would reduce the tax rate on investment income, has received the greatest academic attention. It is, however, intractable and fails the fiscal policy criterion because of the impossibility of

allocating returns between capital and effort and among various investments, as it requires. Two alternatives avoid these pitfalls and provide greater promise. The simple hybrid, which would supplement economic depreciation with an immediate write off of a given fraction of the investment, and COCA, which would supplement economic depreciation by providing a deduction based on the undepreciated portion of a taxpayer's assets, could serve as models for comprehensive reform.

The evaluation of the three hybrids using the five desirable criteria for a hybrid is described below:

Criteria	Tax Hybrid		
	Blended	Simple	COCA
Neutrality	Yes	Yes	Yes
Tractability	No	Yes	Yes
Fiscal Policy	No	Yes	Yes
Transparency	Yes	Yes	Yes
Progressivity	Yes	Yes	Yes

Table III-Summary of Evaluation of Three Hybrids

Because the simple hybrid and COCA both satisfy the five desirable criteria for a hybrid, either hybrid could provide a foundation for a transparent, efficient, administrable, and fair comprehensive tax system. It is, therefore, possible to have a hybrid tax system that is fair, efficient, and administrable.